SEPTEMBER 2, 1972

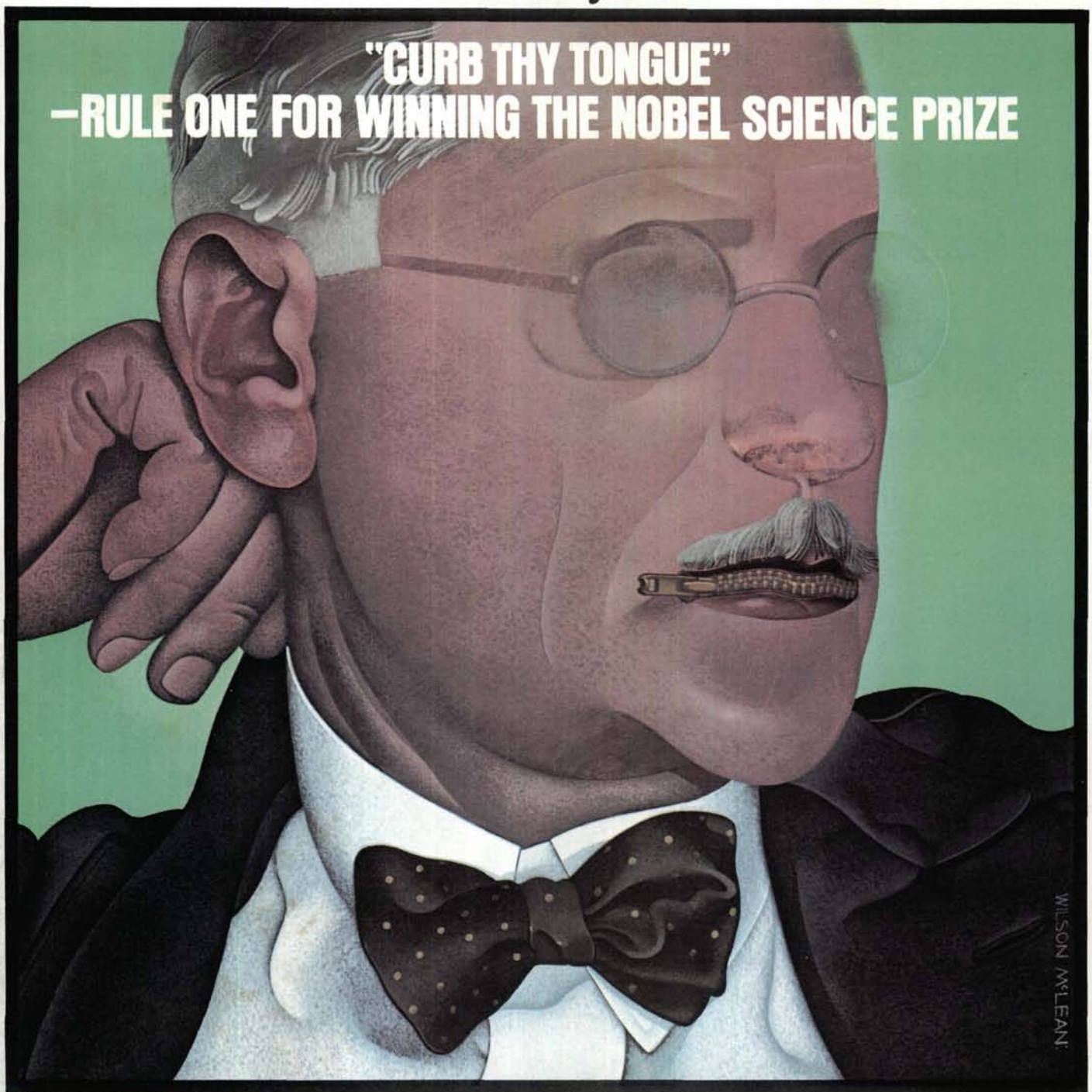
Saturday Review

ONE DOLLAR

SCIENCE

A Holography Primer The World's Greatest Nose

Our Two-Story Culture



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IF YOU HAVE A HARD TIME TELLING ONE WINE FROM ANOTHER, READ THIS.

First of all, don't feel alone.

Probably 99% of the population can't tell a Pinot Noir from a Zinfandel. Or a great Cabernet Sauvignon from a so-so one.

But where do you go to find out? You read what the wine experts have to say and they all disagree. You read all the wine advertising and everbody's trying to sell his own product.

Cyrano could have used a larger glass. Or a smaller nose.

Nobody has really taken the time to sit down and explain even the most basic things about wine. Until now.

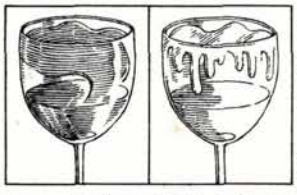
We at Inglenook Vineyards are doing it because it's in our best interest to have you know a great wine when you taste one. After all, that's what we have to sell.

HEIGHTENING YOUR SENSES.

First get yourself a wine glass that exposes the wine to plenty of air. The more air you can expose wine to, the better you can taste it.

And be sure you can get your nose in the glass. That's important because in wine tasting, the nose does 75% of the work. A glass with a 3-inch brim is best for most wines. But if you have a larger than average nose, you'll need a larger than average glass.

NEVER TASTE WINE OVER A CHECKERED TABLECLOTH.



Heavy wine forms "sheets." **Light wine forms "legs."**

Fill the glass about a third full and set it down on a white tablecloth. That's so you can see the wine's true color.

Now really look at the wine. Check its color. That's the first clue to a wine's taste. Usually, the darker the color, the fuller the wine. This applies to whites too, which can go from a pale straw to golden. With rosé, look for a crystal clear light pink, with no muddiness.

Now swirl the wine in the glass. A full bodied wine will come down the glass in "sheets". A lighter wine will break into "legs". A good rosé should come down in thin "legs", which indicates delicate body.

Take a good sniff.

This is hard to explain but your nose should confirm everything you've seen with your eyes. A rosé that looks brilliantly clear and is of delicate body should smell that way too.

WHISTLING AT THE TABLE.

Now take a sip of wine, hold it in your mouth, and whistle. Whistle in, not out. Try to get a nice gurgle going.

This technique also allows you to taste the wine for a longer period of time. For it extends that single instant when wine, air, tongue, gums and nose come together for the first time. Thus, it enables you to have more time to make an initial judgment. Keep in mind everything you've experienced with your eyes and nose, should be confirmed with your mouth by this technique.

BUILD A WINE CELLAR IN YOUR BRAIN.

When you actually start your wine tasting education, be sure to follow the chart below. The order is important because you'll be going from light to full bodied in the white wine spectrum. The red wines are listed in a similar fashion. You should work your way through them after you've mastered the whites.

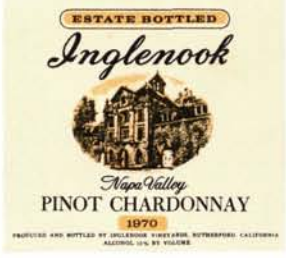
INGLENOOK'S SUGGESTED WINE PROGRESSION CHART

White	Red
White Pinot	Gamay Rosé
Pinot Chardonnay	Gamay Beaujolais
Grey Riesling	Pinot Noir
Sylvaner Riesling	Zinfandel
Johannisberg Riesling	Gamay
Chenin Blanc	Charbono
Dry Semillon	Cabernet Sauvignon

A WORD OF WARNING.

If you're going to put this much time and effort into learning something about wine tasting, then go for the most expensive wine you can afford. High priced wine is high priced for a reason. Namely, better grapes, and more care goes into the making of the wine.

That said, Inglenook Estate Bottled Wine is the most expensive wine made in America. It all comes from the Napa Valley, which wine authorities agree is one of the finest wine producing regions in America, if not the whole world. And it all bears a vintage date, which is a rarity in American wines today.



Estate bottling means we make it from varietal grapes grown in vineyards under our constant supervision.

So if you can swing it financially, get your wine education from Inglenook.

Any good education costs money.

INGLENOOK

We make the most expensive wine in America.

This ad is one of a series. If you'd like copies of the other ads, send your name and address to The Cellarmaster, Box I, Inglenook Vineyards, Rutherford, CA 94573.

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AN ADVENTURE THROUGH THE CARIBBEAN TO BRAZIL.

COME, JOIN US FOR 28* ADVENTUROUS DAYS LEAVING JANUARY 4TH.

Lots of people go on cruises. Cruises are nice.

But how many people go on adventures?

Few. Mainly because, these days, adventures are scarcer than pterodactyls' teeth.

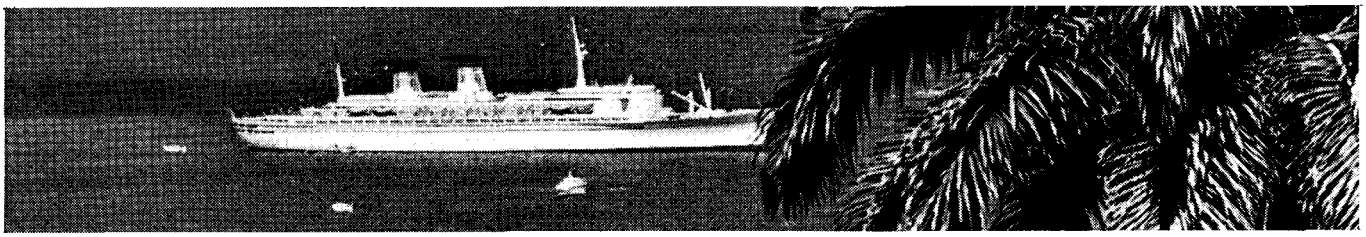
By an adventure, we mean an event filled with discoveries, with a sort of electricity to it.

Something that's both new, and fun. Something for people with an insatiable sense of curiosity.

Hence our adventure:

The 1973 Caribbean-Brazil Adventure.

A 28-day event, visiting many ports on the Caribbean (this many: St. Thomas, St. Maarten, Martinique, Curacao, San Juan, Grenada) and Bahia, stopping for two great days in Rio de Janeiro, Brazil.



THE SS MICHELANGELO. A PORTABLE ADVENTURE LEAVING NEW YORK JANUARY 4, FROM PORT EVERGLADES, FLORIDA JANUARY 6.

Ports of Call

St. Thomas, Grenada, Curacao, St. Maarten, San Juan, Martinique, Rio de Janeiro (Brazil), Bahia (Brazil).

The ship's our ss Michelangelo, the pride of our fleet.

It should be perfect for making you feel more relaxed and Italian. Which is, after all, our stock-in-trade.

And because the entire thing is a luxury event, we've got to make it first come, first served.

So only a limited number of passengers can be accommodated.

Therefore, you'd best get your travel agent checking things out, in case you're interested.

MAIL NOW, ADVENTURE LATER.

Or, you might mail us back our coupon and we'll speed information to you, so you can make your mind up in time.

The Caribbean-Brazil Adventure leaves New York next January 4, and Port Everglades two days later, but we've found reservations are often filled early on anything as special as this.

Thank you.

Italian Line
One Whitehall Street, New York, N.Y. 10004

Please send me your illustrated brochure on the 1973 Caribbean-Brazil Adventure. I'd like to start thinking about it now.

Name _____

Street _____

City _____ State _____ Zip _____

Travel Agent _____

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SR9-72

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All-year-round transatlantic voyages, Caribbean cruises, Mediterranean tours. ss Michelangelo, ss Raffaello, ss Leonardo da Vinci, ss Cristoforo Colombo. Country of registry: Italy.
*24 days round trip from Port Everglades, Florida leaving January 6, 1973.

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Saturday Review of Science

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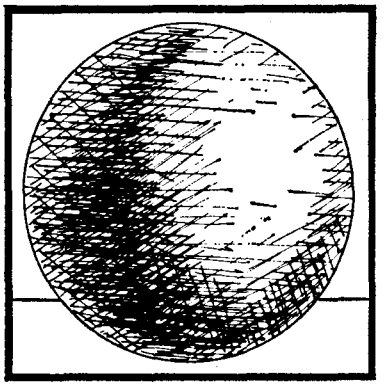

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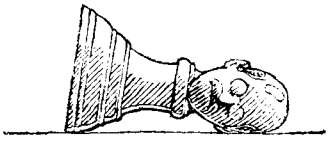

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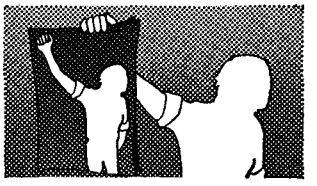

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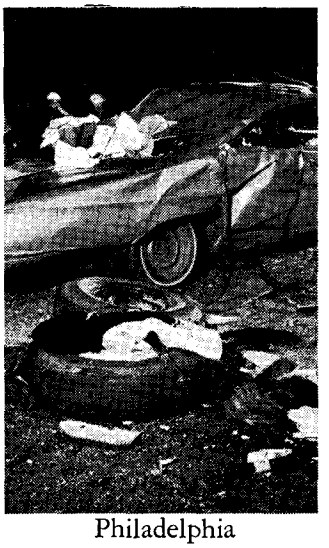
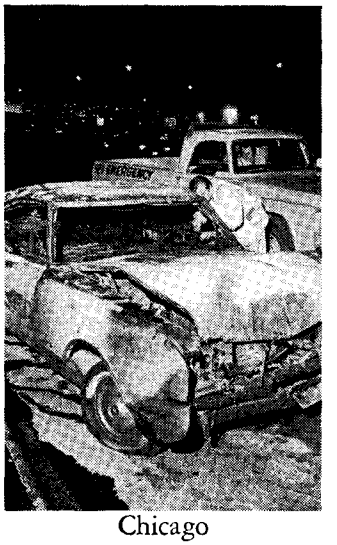
Which of these cities has the lowest rate of motor vehicle deaths?

Boston

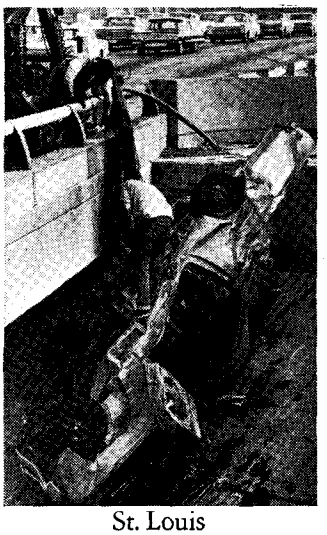
New York



Philadelphia

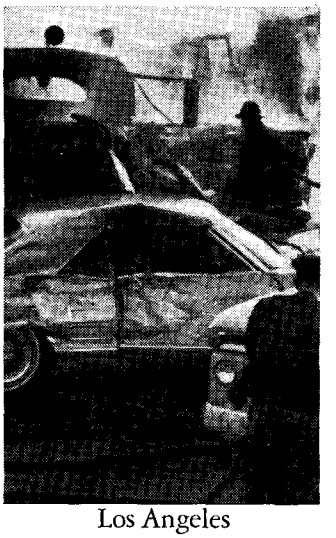


Chicago



St. Louis

San Francisco



Los Angeles

Head for New York.

Among these seven cities, it has the lowest rate of vehicular deaths per 100,000 people. (In fact, New York's rate applied nationally would cut the country's death toll *in half*.)

But steering a safe course in and out of any big city today is a challenge to survival—and sanity.

And since there's a CBS Owned AM radio station in each of these seven, we have a special responsibility to look out for the driver's welfare.

Because we share the driver's seat. The only medium that does.

So we give far more than lip-service to traffic safety. WEEI Boston got an Alfred P. Sloan award for its campaign last year. Every time a fatality occurred, WEEI announced it on the air. Once an hour for 18 straight hours. And a taxi fleet of 350 cars displayed special yellow flags for the same 18 hours.

Chicago listeners learned from WBBM Newsradio the newest facts about the social drinker on the road. KNX Newsradio's award-winning "Half A Second" told Los Angelenos which accidents can be prevented, and what happens when they occur.

Of course there's much more to our job than traffic. People also need to know how events are moving.

So we continuously track the complex flow of the news. The stop/go signals. And which caution lights are flashing. In the city. All over.

Not a bad idea to heed the signals in today's world. In or out of a car.

The CBS Owned AM Stations

We feel responsible to over 60 million people.

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(Advertisement)

Are you part of the "remember when" syndrome? Do you like to reflect on the time when milk came in bottles and Fiorello LaGuardia advised his radio audience to shake the bottle rather than pay the extra five cents for homogenized? Or chuckle over what used to happen when Fibber McGee ignored Molly's pleas and opened the door of the closet? Did you gather round your radio to listen to Walter Winchell "go to press" every Sunday night? And do you remember Wee Bonnie Baker whispering her admiration for Johnny across the airwaves from coast to coast?

Which brings me to a handsome and entertaining book: Leo Walker's THE WONDERFUL ERA OF THE GREAT DANCE BANDS. Here are names to warm the hearts of true nostalgia freaks: Kay Kyser and his Kollege of Musical Knowledge; Hal Kemp; Eddie Duchin; Tommy Dorsey; Ben Bernie; Red Nichols; Paul Whiteman; Horace Heidt; and, of course, the great Glenn Miller. Leo Walker who started out as a musician and has never been far away from the music business, tells the marvelous story of the golden times of the big bands. The book is full of facts and tales about everyone from Benny Goodman to Tommy Tucker. But best of all, it is packed with pictures of all the bands, their leaders, and vocalists. Leafing through the book, I began to remember Saturday night dates at the Cafe Rouge of the Hotel Pennsylvania—swing and swaying with Sammy Kaye—or afternoons spent staring vacantly out of the window while my Victrola broadcast the sweetest music this side of heaven.

THE WONDERFUL ERA OF THE GREAT DANCE BANDS is a book to savor and to give. It's instructive, of course, but most of all its fun and makes you recollect what fun it used to be to go dancing.

L. L. Day
Editor-at-Large

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SR UP FRONT

SEPTEMBER 2, 1972

A Regular Family Meal (Aargh!)

BY COLMAN McCARTHY

WASHINGTON, D.C.—"It won't be anything fancy," Helen said, inviting me to dinner a few nights later. "Just a regular family meal. Do come." I said fine. Helen and her husband, Frank, are old friends, and I hadn't seen them for a while. Anyway, Helen is known as a fine and homey cook.

The meal Helen served was indeed a regular family meal. I wouldn't have noticed anything wrong about it if I hadn't been reading up on the American food industry and had learned about the dangers—and potential dangers—of the chemicals that are put into processed food. I had also heard that some of our food is filthy. And I knew it could be extremely expensive. Just how nutritious are the meals served in millions of American homes, I wasn't sure.

As it turned out, Helen's meal was not the worst I've had. None of her dishes was overt junk food, and all at least looked good. Still, I didn't eat much.

Helen led off with a bowl of soup—chicken noodle, made by Lipton in its Cup-a-Soup line. On the packet of dry mix the second ingredient listed after noodles is salt. Salt is listed even before the dehydrated chicken. (On a non-standardized food, manufacturers are required by the Food and Drug Administration to list ingredients in the order of weight.) Thus, Lipton's chicken noodle actually contains more salt than chicken—it really is noodle salt soup. Although the FDA keeps an eye on the ingredients, it doesn't regulate the names.

Excessive use of salt is a common tactic in food processing. In *Consumer Beware!*, Beatrice Trum Hunter points out that salt is "extremely useful to the food industry. It acts as a preservative. It can mask the flavor of odorous foods. It can help inhibit the growth of molds and bacteria. It bleaches and 'improves' food color. It can prevent discoloration. It is a processing aid in peeling, sorting, and floating. It is useful in drying and freezing foods. It whets the appetite to consume *more* processed foods and beverages. And, being one of the cheapest commodities, every ounce of salt used in place of food is a saving for the processors." Mrs. Hunter goes on to say that many Americans consume "astronomical proportions" of salt—up to twenty times what the body needs or can use. She also points out that "excessive salt intake is involved in many serious health conditions, including high blood pressure, obesity, heart disease, atherosclerosis, and tooth decay."

While my hosts were drowning their joys in salty soup, I had to look busy, so I went for the bread. There was a choice: Wonder bread or imported French bread. Both were puffy and airy, but the French bread must be better for you, right? Well, in a recent study called "The Staff of Life," Paul E. Araujo and Jean Mayer tell of an experiment examining forty-four breads from several different nations. They report that "this highly regarded French bread was last nutritionally."

Although to me mass-produced bread has always been tasteless, the Wonder bread began to look tempting. At least it contained some nutrition, since law requires enriched flour to be used. So I took a slice. I had no illusions, however; I remembered that in March 1971 the Federal Trade Commission moved against the Continental Baking Company, an ITT subsidiary, because of the advertising claim that Wonder bread "helps build strong bodies twelve ways." The FTC charged that Wonder bread is no different from other enriched breads. In October 1971 the company finally admitted that its product "will not provide a child, ages one to twelve, with all the nutrients, in recommended quantities, that are essential to healthy growth and development."

Rather than eat my Wonder bread dry, I applied some pimento spread. Its main ingredient was water. Pimento was the ninth of the sixteen ingredients listed on the cover. Also on the list were as many chemicals and additives as anyone could want: disodium phosphate duohydrate, cellulose gum, sodium hexametaphosphate, sodium citrate, sodium benzoate, potassium sorbate, and, fittingly, artificial coloring. All those sodium compounds—salt is a sodium compound—made me uneasy.

And what are all these additives anyway? According to Michael F. Jacobson in *Eater's Digest*, we eat five pounds of them a year but know little about them. The Food and Drug Administration isn't much help; a number of the substances on its list of approved food additives have been proved to be dangerous. Monosodium glutamate was put into baby food until a few years ago, when a scientist discovered that it caused brain damage to infant mice when it was injected under the skin and caused eye damage when it was fed to them in massive doses. Well, what about all the chemicals in the pimento spread? I wasn't sure I wanted to take any chances. Anyway, the stuff had a gummy texture, and when spread broke into particles, as though the watered chemicals couldn't stand to be parted. The Wonder bread couldn't take the strain. It ripped.

A large glass of ice water was before me. It looked good—but one could not be sure. In the last decade alone there were at least 128 known outbreaks of disease or poisoning attributed to drinking water. Daniel A. Okun, chief of environmental sciences at the University of North Carolina, has said that half of the population drinks water discharged "only hours before . . . from some industrial or municipal sewer." Passing up my glass of ice water, I swallowed the grim truth that

Colman McCarthy is a writer for the Washington Post.

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the last Senate hearing on the purity of drinking water was in 1893, when Grover Cleveland was President.

The main course was beef liver, spinach soufflé, and crinkle-cut french fries. Helen, half-apologizing for the liver, said she was avoiding steak until the prices came down. Besides, she added, beef liver is good for your blood.

The soufflé came from a Stouffer's frozen twelve-ounce package, with a pretty picture on it. Pale and airy, it tasted to me like a seaweed sponge. The next day, when I phoned the Stouffer Company in Solon, Ohio, to ask how much spinach was in the twelve-ounce packages, the public-relations man did not know right off, but he told me that Stouffer's was a great and proud company that made delicious food. An hour later he called to say that spinach was 35 per cent of the total and skim milk was 16 per cent. How can that be? I asked. On the label skim milk is listed before spinach. "That's funny," said the Stouffer's man. "Let me check." Ten minutes later he called again with a revised count. Skim milk was 31.7 per cent and spinach was 30.2 per cent. Thus, Stouffer's, like Lipton's, has it backward: Spinach soufflé is really skim milk soufflé.

The french fries turned to mush on the first bite. There was no telling by the taste that they were potatoes, and no wonder. The vitamin C is largely lost in processing them into convenience foods. According to one nutrition study, "fresh french fries contain 21 milligrams of vitamin C per 100-gram portion while the frozen samples were found to range from 0.3 to 16.7 milligrams, depending on brand." Now, a pound of fresh potatoes at the market costs 16 cents; Helen's crinkle cuts cost 33 cents a pound. In the course of doubling the price, the manufacturers may have supplied half as much vitamin C.

Everything served so far, I began to think, had been through a factory, save the water, which might have come from a sewer. Last April, when investigators from the General Accounting Office ran their clean finger of curiosity through ninety-seven food plants, randomly chosen, they found only thirty clean enough to comply with federal law. The reports on the rest ranged from "significant unsanitary conditions" to "minor unsanitary conditions."

Meanwhile the FDA has published a list of the levels of contamination it allows the manufacturers to put into food. Fifty insect fragments—presumably such tidbits as fly wings, roach shells, and ant feelers—are okay for three-and-a-half ounces of peanut butter. Corn meal may have five rodent pellet fragments; three-and-a-half ounces of tomato juice may have ten fruit fly eggs or two larvae. Other items allowed—the FDA calls them "natural or unavoidable defects in food"—include bacteria, mold, and rot. The agency claims the filth permitted in our food presents "no hazard to health."

For some reason, I was still hungry.

Helen said, with a wifely smile, that she liked to serve liver to Frank because "he can be a health nut at times."

No doubt. But whether Frank will end up a healthy health nut is another question. For almost twenty years many cattlemen have been giving their livestock a hormone called diethylstilbestrol (DES), which causes the animals to reach market weight of 1,000 pounds thirty-five days early on 500 pounds less feed. Presumably, the DES is passed by the animal in its excrement. The problem is, DES is a known cause of cancer in lab animals. Until recently the FDA seemed only mildly alarmed. "DES is clearly a useful and effective product," said the FDA commissioner Charles C. Edwards, M.D. Of course, federal law—the Delaney Clause—forbids use of a proven cancer-causing chemical in animal feed when residues of it can be found in the meat. Disclosures by the Agriculture Department in June revealed that DES *is* being found by federal investigators and that since January, when new regulations were instituted, the levels have risen.

At first the FDA claimed it didn't have all the facts about the cancerous drug and that a public hearing had to be held. Then, early last month, the agency took action—of sorts. It ordered an immediate halt in the production of cattle feed with DES and gave the farmers until the end of the year to use up the feed on hand. However, the drug may still be used to fatten animals, for the Department of Agriculture and the FDA are now studying another way of using DES—implanting it in the animal's ear. Their theory is that less of the substance is released into the animal's system by this method—and, supposedly, there is a smaller residue.

Needless to say, I ate as little of the liver as possible.

For dessert Helen brought out a quart of Briggs chocolate ice cream and a bowl of topping. She said Briggs, a local brand, was her favorite because the company puts out a special container that is hand-packed. "It's hand-packed?" I asked. "Yes," Helen said. "They say so on the label." I had been to the Briggs Ice Cream Company and knew a little about the statement. Last year, when the plant manager was showing me through his operation, I asked him if he could show me the workers hand packing. Sorry, the manager said, just by chance they didn't happen to be in at that particular moment. I asked if he would describe how the hand packers go about their work. Sure, he said, by now friendly. A worker on the assembly line "just holds it [the container] under the filling machine. So there's a hand on the package as it is packed. We say hand-packed, not hand-dipped. That's pretty damned clever, isn't it?"

The only federal regulations for ice cream are requirements that it be at least 10 per cent butterfat and weigh at least 36 ounces for a half gallon, which means that about 50 per cent of the contents can be air. The ingredients need not be listed, and manufacturers have more than thirty-two additives to choose from, including sodium carboxymethylcellulose and tetrasodium pyrophosphate (there's that sodium again!).

Consumers, long conditioned to buying ice cream by volume and not by weight, rarely check a brand's heaviness in relation to the price. The ice cream freezer in the Giant supermarkets in Washington, for example, carries three brands in half gallons: Briggs, Heidi, and State House. The last two are distributed by Giant but made by another firm. It is easy to discover who that is. The nearly microscopic print on the containers reveal that the District of Columbia, Maryland, and Virginia food license numbers of Heidi and State House are identical with the number on a Briggs container. Thus, all three brands are made by the same manufacturer. A further comparison reveals that the weights are nearly identical: 42 ounces for a half gallon of Briggs and Heidi, 40 ounces for State House. But the prices are not identical: Briggs costs $1.19, Heidi 99 cents, and State House 69 cents. Because ice cream makers are not required to list the ingredients or butterfat content, the consumer selecting among the three brands has no way of knowing differences in quality or weight.

The difference between the mass-produced ice cream served by Helen and the kind I buy at a bakery is air. Those who remember licking the dashers of a hand-cranked home freezer know that air is introduced into ice cream according to how much the ice cream is beaten. My baker beats his ice cream for only twelve minutes, putting in just enough air to keep it from becoming soggy and gooey. Some factory-made brands are so aerated that no bite or chew is left.

The topping Helen served was Cool Whip, the nondairy dessert manufactured by General Foods. She put two blobs on Frank's dish. They sat like a pair of creamy breasts upon the tan body of luscious-looking ice cream. To me, the Cool Whip was the most revolting part of the meal. It is a "food" made al-

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Saturday Review is now a family of four monthly magazines.

Introducing a unique opportunity for you to satisfy your informational needs with a flexibility and selectivity you never had before.

Saturday Review has evolved into a family of four monthly magazines: SR/THE ARTS, SR/EDUCATION, SR/THE SOCIETY, and SR/SCIENCE.

These are edited in weekly rotation, so that *current* Saturday Review subscribers will continue to receive *all four monthlies*—one each week.

Each of the four magazines is available to *new* subscribers as an independent publication. Thus, new subscribers can choose one or two monthly magazines only—SR/EDUCATION, for example, and/or SR/THE SOCIETY.

It is also possible for new subscribers to receive *all four monthly magazines,* in which case they, too, will receive a magazine a week.

Why the change?

It is increasingly difficult for readers to keep track of changes in all of their areas of interest.

The changes are too complex and they are happening too fast.

The changes we've made in Saturday Review are designed to make information more accessible to the reader and easier to absorb.

By creating a family of four monthly magazines we are able to bring each area of interest into sharp focus (as opposed to narrow focus).

A natural evolution.

This process of editorial change has been a gradual, evolutionary one.

Over the years four basic supplements were introduced in Saturday Review: *Multi-Media, Education, Communications,* and *Environment (Science).*

These supplements enabled Saturday Review to give readers better—and better organized—coverage in these areas.

Multi-Media has been expanded to examine *all* the arts as they affect life—not just the professional arts (theater, music, dance, television, etc.) but the popular arts (like amateur photography and even gardening) as well. SR/THE ARTS takes the arts public and encourages *everybody* rather than a few people to enjoy and understand the arts.

Education has been expanded to focus on the life-long search for knowledge in all its forms. SR/EDUCATION explores how the process of learning can become a more significant part of the excitement of living before, during, and after so-called formal education.

Communications has been transformed into SR/THE SOCIETY, thus providing a broader, more comprehensive editorial focus. SR/THE SOCIETY's primary editorial thrust is to help readers cope with the dizzying change that has overtaken all of our social institutions in this age of discontinuity.

And *Environment (Science).* In an era in which men split the atom, walked on the moon, traced the delicate workings of the brain, and charted evolution through fossil finds, a huge communications gap has been opened between scientists and laymen. In fact, the scientist outside his own field is another scientist's layman. SR/SCIENCE seeks to make the relevance of all the sciences understandable to the layman.

Each of these monthly magazines retains a good measure of continuity. SR/Up Front appears in each of the four magazines offering four or five observers a chance to focus on a single person, phenomenon, or event in accordance with our conviction that great trends are often best understood when dealt with on a small, human scale. Each of the magazines also includes the regular Saturday Review features like editorials, comprehensive reviews (books, music, films, theater, and dance), a travel column, and puzzles.

To make one important magazine four important magazines.

We have doubled our investment in our most precious resource: people.

We've added 45 people to our editorial staff: editors, writers, researchers, and graphics experts.

We've drawn upon the editorial resources of the nation, attracting individuals from The New York Times, Newsweek, Time, Natural History Magazine, Horizon, and many other important publications. Now, we all face with excitement a major editorial challenge and opportunity: To make a great magazine greater.

Five separate editorial staffs have been created: one for each of our new magazines and one to maintain continuity and a family resemblance among them.

All the credentials of Saturday Review's editors would amount to little if they were not deeply committed men and women. Our editors' concerns, their passions, their involvement in the world of ideas are reflected on the pages of this family of magazines. They strive for truth and realize that truth may emerge from a balanced view of our times, but realize that "balance" must never dilute a compelling idea.

To reach our objectives we've increased the editorial pages in each issue of the family of monthlies by 40%.

Believing that graphics are a vital part of effective communication, we've also invested heavily in full-color photography and illustration.

How to subscribe selectively.

Each of our new magazines is available at a regular $12 annual Charter Price.

However, each of them is now being offered to new subscribers at a Half-Price Introductory Rate of $6 per year.

The newsstand price per issue is $1.

In addition, for those new subscribers who elect to subscribe to *all four* of our magazines (thus receiving a magazine a week), the regular combined price is $24 per year.

The two pages that follow describe our family of four monthlies in more detail.

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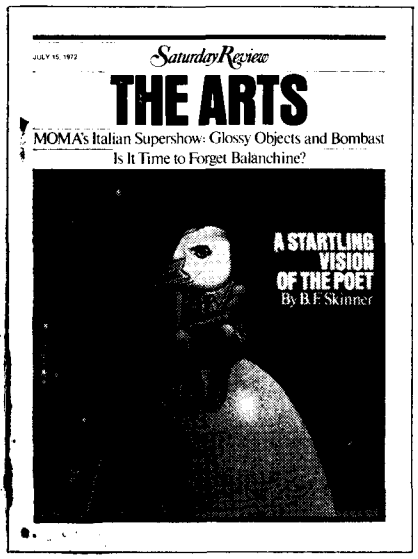
THE ARTS

Across the country there is more interest in the creative powers of our culture than ever before.

It isn't just a passive interest; people are discovering that in every one of us there lives an artist, a creator of some sort, and that "art" is no longer the special preserve of a few experts. New art forms, new art centers, and new concepts of what art should be are developing in joyful profusion.


JULY 15, 1972
Saturday Review
THE ARTS
MOMA's Italian Supershow: Glossy Objects and Bombast
Is It Time to Forget Balanchine?
A STARTLING VISION OF THE POET
By B.F. Skinner

SR/The Arts is designed to help you keep up with all these exciting developments.

It features eight regular departments: Cinema; Art; Theater and Dance; Entertainments; Writing; Architecture and Design; Music; and People and Ideas.

These departments spot trends, report on coming events, revisit forgotten masters, and put you in touch with the personalities behind art news.

But Saturday Review/The Arts does not confine itself to the traditional cultural categories. The magazine sets no artificial limits on its scope.

It looks at all the Arts.

Photography. Design. Dance. Sculpture. Architecture. Literature. Painting. Communications. Criticism. Opera. Music. Film. Theater. Poetry.

You'll get guides to European and American music festivals, thorough reviews of the latest recordings, reports on jazz, pop and rock, and articles on Broadway musicals. Sir Rudolf Bing will recall his twenty-two years as impresario of the Metropolitan Opera, and novelist Terry Southern will cover the Rolling Stones' American tour.

—You'll read a debate between two great men of letters, Francis Steegmuller and Alberto Moravia, that continues a modern controversy over a novel written more than a hundred years ago.

—You'll discover how an American firm is redesigning Sao Paulo's transportation system, how a famous lighting designer is constructing mobile theater units, how a woman artist is coming up wth new, humane concepts for buildings that startled and influenced established architects.

—You'll read John Hightower, former director of the Museum of Modern Art, on how tax dollars may revolutionize museums, changing them from private clubs for connoisseurs to vital public institutions. You'll see Claude Picasso's essay on the private collections of America's best-known modern artists.

In addition, The Arts carries features, puzzles, reviews, contests and editorials.

We invite you to become a Subscriber to Saturday Review/The Arts at the half-price charter introductory rate of $6.00 for one year.

EDUCATION

This magazine explores the world of learning, and raises fundamental questions about the existing educational system, and the new directions it might take.

It has several editorial departments, including Previews and Reviews, Life and Learning, Early Childhood, The Schools, Colleges and Universities, and People and Ideas.

It examines how we learn, where we learn, and what we learn, and relates it to the new requirements of our society.

It does not restrict its attention to schools, colleges and other formal institutions, because we are constantly learning outside the classroom.

All through your life, environmental influences are having a profound influence on your ability to cope.

In addition, basic education is undergoing significant change at all levels in our society.

The information explosion is partly responsible.

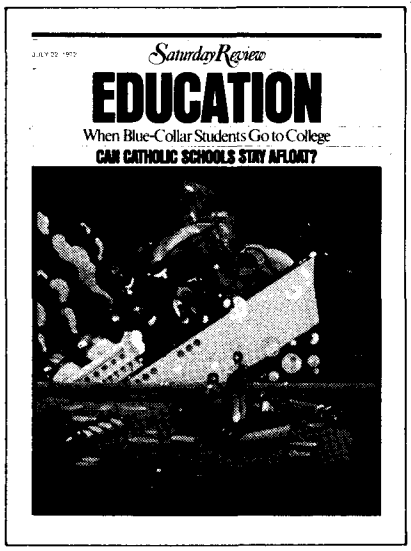
New technology plays its part.

And educators are learning more about how people learn, and what they retain.

But the major change occurring in education today may be due to the fact that teaching methods which worked in America during the industrial revolution and the immigrant waves will not be relevant in the 21st Century.

We are faced with education in the urban ghetto.

Retraining of workers who have been automated out of jobs.



Overcrowded, underfinanced school systems.

Continuing education beyond college, for people who need it, and for people who enjoy it.

SR/Education is intensely readable, relevant and exciting.

Here are some of the things you will read about in Education.

—Are "educational toys" really educational? Are they really necessary?

—Children's TV. A guide to the coming season that parents, and educators can really trust.

—The "blue-collar" colleges: as open admissions becomes policy in many colleges, what experience from the past will be significant?

—Do those "crash courses" for the College Boards really help?

—A head-start on Head Start: education begins in the home.

—Should schooling be compulsory? Direct reports from states where it is not.

We invite you to become a Charter Subscriber to Saturday Review/Education at the half-price introductory Charter Rate of $6 for 1 year.

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SCIENCE

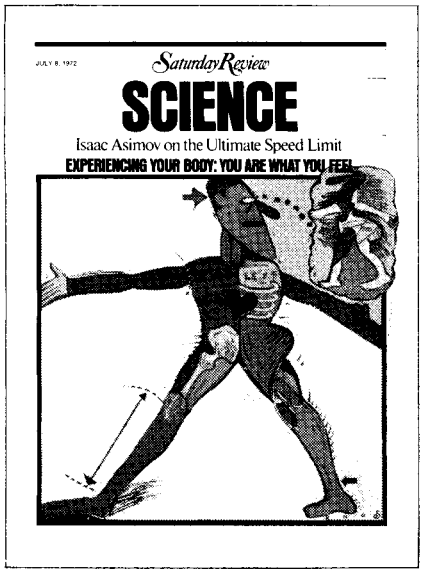
Science has become too important a part of our lives to be left to scientists.

Yet most magazines that deal with the subject of science are so technically oriented, they tend to be obscure to the non-professional.

So the editors of Saturday Review have created a monthly magazine to solve the problem.

It's called Saturday Review-Science, and it's written for you, the non-professional.

Which is not to say that it's simplistic.


JULY 8, 1972
SaturdayReview
SCIENCE
Isaac Asimov on the Ultimate Speed Limit
EXPERIENCING YOUR BODY: YOU ARE WHAT YOU FEEL

In fact, many scientists thoroughly enjoy it. They read it to learn more about areas other than their own.

What we've done is to make the materials more relevant, and more digestible.

We've eliminated the statistical probability curve charts.

And the complicated three-paragraph chemical formulae.

We've left the fun in.

SR-Science covers science as it needs to be covered.

It keeps you abreast of developments in virtually every field of science.

Health and medicine. Psychology. Physics. Environment. Sociology. Anthropology. Biology. Chemistry. Computer sciences. Applied sciences. And the ideas and discoveries of the top men and women in the various fields of science.

Our approach is to clarify and communicate, rather than just to report.

After reading an article on the phenomena of lightning, you will actually *understand* the processes that produce them. In detail.

Some articles:

—The computer and civil liberties: the danger of a nation on file in a machine's memory.

—Lunar tides: how the attraction of the moon results in everything from mirth to madness.

—What's wrong with American agriculture.

—Weather modification: are raindrops as lethal as bombs?

—The psychology of foreign aid: is it really better to give than receive?

—The schedule of the human embryo: when does life really begin.

—The definition of death. When does life really end?

In addition, Science carries features, puzzles, reviews, contests and editorials.

You can get a Charter Member Subscription at the half-price rate of $6.00 for one year.

We invite you to take advantage of this offer today.

Layman or not.

THE SOCIETY

The new politics. Changing lifestyles. Business booms and busts. Freer relations between the sexes. Power, and how to get it. War, and how to stop it. Money, and how to make it. Things, and how not to let them get the better of you. Nature, and how not to muck it up.

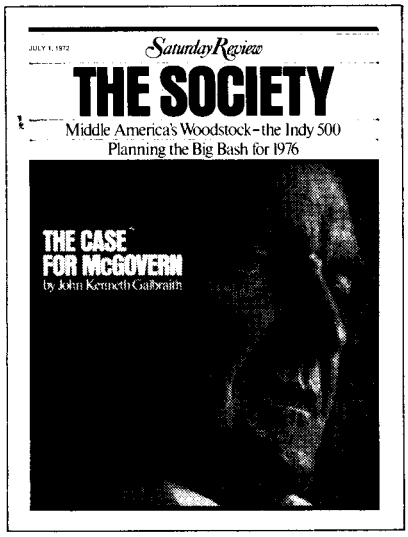
Newspapers and television do cover these topics, and that's why they're conversation pieces. But even the newspapers can't cover these subjects in depth.

Deadlines won't permit it.

So the editors of Saturday Review have created a new magazine that fills the need.

It's a monthly, so that we can have the luxury of research, re-examination, and reflection.

The result is articles that are meaty enough to give you something to talk about for a month. And think about for a lot longer.



In a way, it is an invaluable, practical aid to coping with and surviving in a society that is changing around us at a future-shock pace.

Its main fare is things you don't get to read about in the newspapers.

—Like John Kenneth Galbraith's witty and compelling statement of "The Case for George McGovern."

—Like a recent essay by Clark MacGregor (President Nixon's new campaign manager) entitled "The Coming Nixon Victory."

—Like "A Radical Guide to Wedlock"—in which the authors spell out the way (they think) a modern marriage contract ought to read.

—Like "Smart Bombs and Dumb Strategy"—an analysis of how the Vietcong and the North Vietnamese manage to go on shooting even after having been bombed harder than the Germans in World War II.

—Like the profile of the man who is called "The Ralph Nader of the Insurance Business."

—Like the psychoanalytic probe into the fad of skyjacking.

—Like a symposium of the nation's leading economists on the subject of tax reform.

—Like an analysis of the new "social responsibility" mutual funds.

Saturday Review-The Society is looking into the issues of society. Our corporation. Our unions. Prisons. Environmental protection groups. Community-run day-care centers. The economy. Leisure. Business. Communications. Politics. Advertising. Technology. Welfare. Jobs.

In short, the pulse of life.

We invite you to become a Charter Subscriber to Saturday Review-The Society at the half-price introductory rate of $6.00 for one year.

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most entirely from additives and synthetics. After water, the main ingredients as listed are an all-star selection: hydrogenated coconut and palm kernel oils, sugar, vanilla, sodium caseinate, dextrose, polysorbate 60, sorbitan monostearate, carrageenan, guar gum, artificial color and flavor. Cool Whip, which won the 1970 award of the Institute of Food Technologists, was described by the institute as a "stable freeze-thaw emulsion resembling whipped cream in appearance, utility, and texture when eaten." I passed up the Cool Whip pleasure and wondered if my friends would ever invite me back again.

When I got home that night I looked up a chapter in *Consumer Beware!* in which the author answers the question, "What harm can chemical food additives do?" She writes: "Scientists are becoming aware of the need to study the untoward results [of chemical food additives on health]—those which are slight, unnoticed, delayed, and indirect. These are the subtle effects on the human system at the basic cellular level, resulting from hundreds, even thousands of substances biologically foreign to the body, consumed daily in common foodstuffs, over many years, or even during an entire lifetime." I ate an apple, organically grown, and went to bed. □

The Life and Death of an American Chicken

BY JON A. JACKSON

As Colonel Sanders could tell you, the American chicken is strictly an assembly-line product.

IOWA CITY, Iowa—Deep in a subterranean chamber, under a domed ceiling lined with lead to ward off cancer-inducing cosmic rays, a huge mound of glistening flesh pulsates gently. It is nourished by plastic conduits that carry water and nutrients. The mound is called "Chicken Little." Around its ceaselessly growing mass stroll the "cutters," men wielding samurai swords with which they slice off "steaks," which are carried away on conveyor belts.

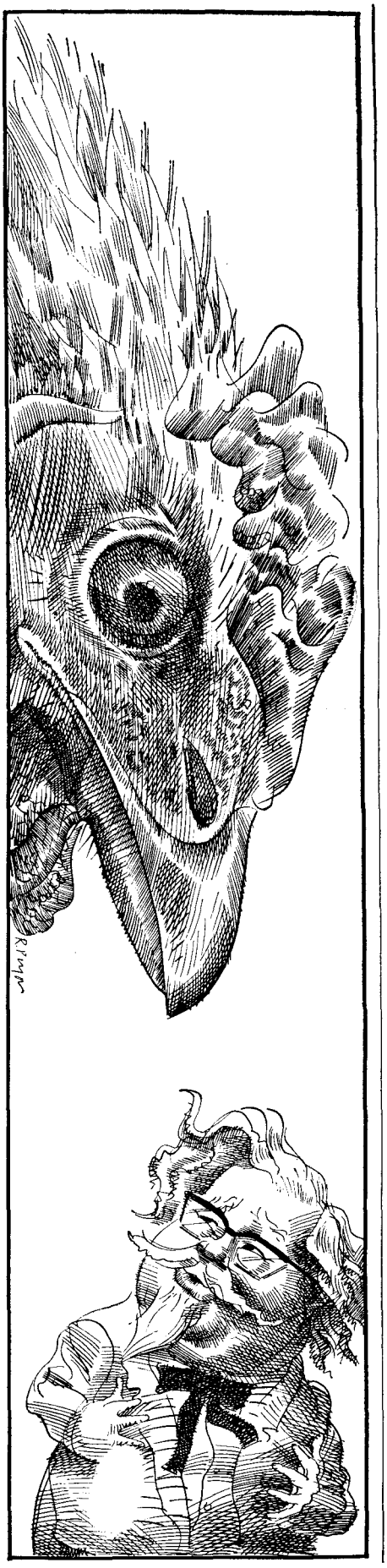
"Chicken Little," which Frederik Pohl and the late C. M. Kornbluth created in their novel *The Space Merchants* twenty years ago as a satirical solution to a future world's protein needs, is the fanciful future of poultry. The American supermarket chicken, a device that converts vegetable matter into flesh in as little as six weeks, is today's reality. And perhaps the two are not very different.

The typical chicken is hatched inside a huge Jamesway incubator, emerging from one among 10,000 simultaneously hatching eggs. The two basic types of chicken are the Leghorn, or layer, and the highly bred strain of meat chicken known as a broiler. If the batch of chicks is Leghorn, a group of men called "sexers" appears at the hatchery on the day after hatch out. Most sexers are Japanese. Working with astonishing speed, they pick up a chick and thumb open the anus to discover the presence or absence of a minuscule phallus. A sexer gets a penny per chick and does thousands a day.

The male Leghorn has no value whatever. He can't lay eggs, few are needed for breeding farms, and Leghorns don't gain weight as quickly as their genetically engineered brothers of the broiler race. Usually they go into the discard box, where they are left to die. Sometimes they are returned to the incubator; the heavy door is closed, the fan is shut off, and they suffocate. The tiny carcasses may be donated to a city zoo, where they will be fed to caged predators akin to those that once stalked the red jungle fowl of Southeast Asia, the ancestor of all chickens.

Broiler males enjoy a longer life-span, especially if castrated and raised as capons for the holiday trade. The vast majority of broilers, however, live for a mere six to eight weeks. In this brief time the fluffy little chick of an ounce or so is brought to a market weight of two pounds plus. This spectacular weight gain is accomplished on only six pounds of chicken feed. Poultry men refer to this ration of bird weight to feed weight as the "conversion rate." (Supermarket "fryers" are simply four-to-five-pound broilers that are raised for another four weeks and that, since the conversion rate drops off, cost more per pound. The "roaster" is a broiler, too—one fed for twelve weeks or longer and weighing five or six pounds when it goes to the abattoir. Capons, the castrated broilers, are fed for eighteen weeks and weigh seven to nine pounds. After this, the conversion rate is not lucrative enough for American mass producers.)

Almost all meat chickens grow up in the South. They are raised in sheds, and many of them spend their lives on a suspended floor of wire mesh, although most probably are still raised on the ground. Domesticated fowl, kept in close quarters in enormous numbers, must be fed medication with their high-yield nu-



Jon A. Jackson teaches at the Writer's Workshop of the University of Iowa.

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trients. As a remedy for coccidiosis—an often fatal ulceration of the intestinal lining caused by a protozoan that is spread by the chicken's droppings—they get one of a variety of so-called coccidiostats. Some coccidiostats bind vitamins so that they are unavailable to the protozoan; others may duplicate normal DNA, the basic genetic material, to provide an artificial substance upon which the coccidia may feed without endangering the host bird. While the disease itself is not considered dangerous to humans, scientists are not so sure about the antidote's effect upon the consumer. Therefore, the Food and Drug Administration says that coccidiostats must be discontinued from the feed a few days prior to slaughter.

Besides coccidiostats, the feed—mixed in elaborate, automated machines keyed to computers—contains a potent mixture of various grains, vitamins, essential minerals, and one of a general range of antibiotics. (There is some controversy about the residual effect of the antibiotics absorbed by the consumer; the issue is unresolved.)

For weeks, then, the chicken receives the best food and medical attention America can provide. When its time is up, the bird is sent along to the processing plant. There it is hung by its heels on a moving conveyor and electrically stunned shortly before having its throat cut. Then it is dipped into scalding tanks and passed through two sets of revolving brushes, which remove its feathers. Finally, strung up by the neck, it sails naked around a large room in which it is unlimbed, disemboweled, and packaged. The liver and other organs stuffed inside any given package may come from another bird.

The longest-lived chicken, outside of breeding stock, is the Leghorn hen, the provider of America's breakfast egg. It takes twenty weeks to bring her to production stage. She then has nine months of laying eggs. After that her egg production falls below a profitable rate, and she is sold to a soup company. Most of the Leghorn pullet's life is spent in a cage with (usually) three other hens, one of which quickly asserts herself as boss. (Another will be the "patsy," easily identified by the bald patches in her plumage where the tougher hens have pecked her.) The cage—there are thousands of cages in a typical shed—is just large enough to provide standing room for the hens. The eggs are laid on the cages' wire-mesh floor, which is slightly tilted so that the eggs roll out into a shallow trough. The light in the shed burns fourteen hours daily to ensure maximum egg production.

A conveyor loaded with programed feed rations glides past the cage at preset intervals; water flows silently down plastic tubes for the hen to drink. A small tractor moves down the concrete ramp between the rows of cages, sweeping excreta into a subterranean basin. The liquefied mixture, rich in nitrogen and potash, is spread onto soybean and corn fields.

Beyond the wire mesh is the grim but free world of pheasants and foxes, pursuing their ancient ways. Their future is uncertain; the Leghorn's is not. Within the mesh the automatic timer hums, clicks, and sets in motion the conveyor that fuels the protein machines. Today's "Chicken Littles" peck and produce and haven't a qualm about the sky falling down on them. Living in sheds from birth to death, they never catch a glimpse of it. □

Pilgrimage to the Heart of Ho Jo's

BY WILLIAM HEDGEPETH

SOMEWHERE ON THE U.S. INTERSTATE HIGHWAY SYSTEM—Filled with an awesome sense of mission, matched with a most scrupulous humility, he stood once again before the bright-orange roof, and bowed his head ever so lightly and burped.

The Young Reporter had originally intended, in undertaking this foray into the sociological ramifications of Howard Johnson's restaurants, to scrutinize all 877 links of this, the largest restaurant chain in the world, until cooler heads pointed out that travel expenses alone would very nearly total the amount of a franchise fee. Consequently, he was prevailed upon to limit the scope of his explorations somewhat. It was just as well. For, at this point in his odyssey—which is to say, after only a few days spent scuttling among different (though virtually identical) Howard Johnson's—he had not only convinced himself to lower his sights and be content with lesser ecstasies but also concluded not to make his big play for the Pulitzer this time out.

And so it was that, with a faint grimace, he strode through yet another pair of swinging glass doors, still doggedly probing away for the subtle core of it all, still in quest of the quintessence of Ho Jo's, of the mythic or metaphysical force (or whatever) that ensnares so large a share of the ceaseless tidal drift of humanity that flows along the roads today.

This time, however, he was not alone, for he had secured the assistance of someone possessing far greater finesse in these bland latitudes: a regular Ho-Jo *aficionado* whose name was Jonathan. Who was his son. Who was six. Thusly, in this bold, exploratory spirit, and with lunch as the immediate goal, the pair entered the establishment and stood politely behind a sign saying "HOSTESS WILL SEAT YOU." And waited. . . .

Earlier that day they had breakfasted at another Ho Jo's north of here and had emerged apparently none the worse for it, in spite of the fact that the Little Boy had passed up his plate of lukewarm eggs in favor of peppermint ice cream plus a side order of fried clams.

Whether for this reason or some other, it had appeared strange that, out of an entire restaurantful of transient characters, the Little Boy was the only one who inspired suspicion. When he rose to browse among the lollipops, several waitresses paused in their normally aimless shufflings and bumblings to cast wary glances, and the manager (a hulking gourd in a pastel-green shirt and silver tie) glowered in silence, with one hand poised over the phone as if ready to report a shoplift.

And, in the meantime, the other patrons had gone on about the business of breakfast with an enthusiasm appropriate to the flatulent meanderings of the Muzak. Since the restaurant adjoined a motel, most of the breakfast crowd were regular denizens of the Interstate: traveling salesmen; irritable young matrons in hair curlers with inert infants in tow; members of some obscure rock combo, all surly and haired-over; a ferret-faced man with an artificial-looking tan, who crouched low in his booth keeping a dark eye on everyone else and occasionally intimating the outlines of some small vague bulge below an armpit; and finally—ahh—sitting off to one side, a most beguiling young, clean-limbed lovely with raven hair and morning-glory eyes glowing with the unmistakable, smoldering essence of animal warmth.

In due course the elegant creature arose to make her way down the aisle to the cash register and, in passing, darted a vagrant glance toward the Reporter's booth. It was at that precise instant that he made his move. "Hello," he said (with all the suavity and debonairness for which he was so widely known), to which, in response, she merely passed on, paid up, and left.

And then, a bit later, the Young Reporter and the Little Boy departed, too, leaving a faint trail of fried-clam vapors.

William Hedgepeth, who lives in Atlanta, is an ad hoc *chronicler of contemporary madness.*

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Now here they were, come lunchtime, still waiting behind the "HOSTESS WILL SEAT YOU" and wondering what was the point in this since not only were most of the tables vacant but there didn't even appear to be a hostess. While they stood, a gaggle of waitresses in green-checkered uniforms smoked, giggled, and goosed one another behind some plastic potted palms until eventually one of them came over, moved the sign, and shrugged, "You kin go siddown anywhere you want."

As soon as they were seated, another uniformed lady clomped forth with two menus. This particular waitress was a tight-lipped, leather-faced female in cat's-eye glasses who loomed over the child with a cold, exalted smile until he issued up his order: peppermint ice cream and fried clams. Then, with a snort, she was gone again.

The restaurant itself was laid out in the standard Ho-Jo configuration. On one side stretched an ice cream counter, at the end of which stood the cash register. Behind the counter was a rectangular opening through which one could see three white-clad blacks (always three blacks, always white-clad) slapping food on plates and laying them out for the waitresses. The rest of the place was the regular dining area whose walls and partitions and tabletops were covered with dark-brown Formica streaked so as to simulate the graining of wood and causing it to look just like authentic simulated wood-grained Formica—or like the insides of practically every other Howard Johnson's throughout the hinterland. There's "someone you know wherever you go," crows the motto. Something familiar. Not jarring. You can Ho-Jo-hop all across the country, stopping in a different one for every meal, and each time you enter it's as if you'd never left.

Swaddled in this timeless environment, nine decorously blue-rinsed little ladies were assembled in the rear dining area to celebrate a birthday or something. The group, in any case, came equipped with a cake sporting a single candle. But before lighting it, one lady proceeded to invoke the Lord's blessing —and did so for nearly five full minutes, during which the several waitresses attending the table felt compelled to stand silent with heads bowed (though winking and making faces all the while).

Along with the food they'd ordered, the Reporter and the Little Boy had requested milk shakes, which managed to arrive almost right away. As a result, they were consumed and long forgotten well before the appearance of the edibles.

In the interim the lunch crowd collected. First down the aisle limped a blanched and withered old lady aided by a black Ho-Jo's waitress. She was followed by a single file of nineteen Brownies, who marched forward holding hands like a trunk-in-tail column of elephants. Four elegantly hip modsters with heavy-lidded Godfather glints in their eyes ensconced themselves in a two-man booth and began calling for ice cream, while across the aisle a man who looked like Rudolph Valentino tried to wave down a waitress until giving up to gaze out the window. Meanwhile, from the kitchen drifted the occasional crash of a dish, punctuated by scurries of silvery giggles. And, as always, hovering vacuously over the scene—lulling the clientele into limp acquiescence—flowed the interminable strains of nameless tunes and miscellaneous vanilla-custard sounds piped in on the Muzak. It was a scene designed to impart a psychic statelessness.

Even so, there abounded a distinct sensation of comfort and dependability. Travelers evidently come to these way stations to be confirmed in some manner; to tarry for a spell and be reassured that Western Civilization hasn't materially altered or faltered during the oblivious span of time they've spent on the Interstate. More than likely, some also gravitate to Ho Jo's to seek refuge from all the clangorous flux and scramble of the "real world"—seeking a place where all the things that once were still are. And here it is—Ho Jo's, possibly the last outpost of the beehive, bouffant, flat-top, and crew-cut, plus saddle oxfords, hoop skirts, and practically everything else that would seem out of place elsewhere. All of which suggests that there just might possibly exist some furtive netherworld of souls who, like the crew of the Flying Dutchman, carom incessantly from one Ho Jo's to another, never to see home port, always to exude the aura of spiritually dispossessed refugees from the Eisenhower era. Here, for the first time, he began to feel as if he were somehow disconnecting from the world outside—losing grip.

Later, as the Reporter and the Little Boy stood before the cash register waiting to pay (and as a handful of waitresses over by the coffeepots occupied themselves in fierce perusal of a wart one of them wore on her elbow), the Brownies upped and single-filed out the door. Next to exit was the limping old lady, looking strangely refreshed and noticeably younger than before.

And then the Reporter jerked back in surprise, as all at once there floated from the rear a dark-haired vision with flesh of pure velvet and eyes made of rain: that selfsame beauteous creature, he felt certain, whom he'd encountered that morning so many miles away. As she wafted lithely to the foyer, he contrived to catch her eye. "Hel-lo," he said, employing that full panoply of charm and droll wit (for which he was so well known). But, lo, without the barest hint of a pause, and punctuated by the abrupt *whoof* of the glass door swinging shut—she was gone.

Many miles and hours later came dinner. This time the pair was ushered to a booth by the manager himself, a good ole boy with a beer gut and an elaborate pompadour. Though the place was fairly crowded, four waitresses sat slouched on stools at the ice cream counter, with the mildly brazen but indifferent sensuality of bar girls or hookers. A few stools away sat an unsuspecting John lapping at a cone of mocha chip.

Presently a shy-spoken little waitress named Bernice appeared from behind a pair of outsized, wire-rim glasses. On this cue the Little Boy gazed up from his children's menu and, with utter innocence, said, "I'd like a bowl of octopus ice cream." After asking him to repeat himself, Bernice jotted down the request and departed (though she returned some moments later, meekly apologizing that they didn't seem to have such a thing—whereupon he changed his order to a peppermint cone—and clams).

New patrons continued to filter in: the short of hair, the long of tooth, the hopefully upwardly mobile, and all manner of other hard-core inhabitants of the U.S. heartland, each of whom has long since learned to feel at one within these vapid-happy surroundings. As a matter of fact, all 1,200 of those carefully selected families whose TV-viewing habits dictate the Nielsen ratings are said to be such avid Ho-Jo devotees that they refuse to entertain the merest *thought* of eating anywhere else.

But what exactly was it that drew them here? Perhaps it was the esthetic allure. According to Howard Johnson's main office in Boston, the restaurants come in Tudor or Mediterranean décor—each of which, however, is handled with such thoroughgoing innocuousness that they amount to the same thing. Here every table had its own bud vase plus three (3) plasticated flowers. A few other such embellishments may appear in the various restaurants, but only if they are wholesome enough to blend into the all-pervasive atmosphere of G-rated humdrumism and blandness.

While growing numbers of diners around the room waved for service, a trio of green-checkered ladies lolled heedlessly among the pies and cakes. Of the three, the most boisterous was a stocky redhead of perhaps forty-five, faintly frazzled around the edges, who was prone to frequent smirks, loud gum smackings, and a demeanor that made her seem like a defrocked madam from a defunct brothel. The second was short, with close-cropped hair and a face faintly reminiscent of Ernest Borgnine; while

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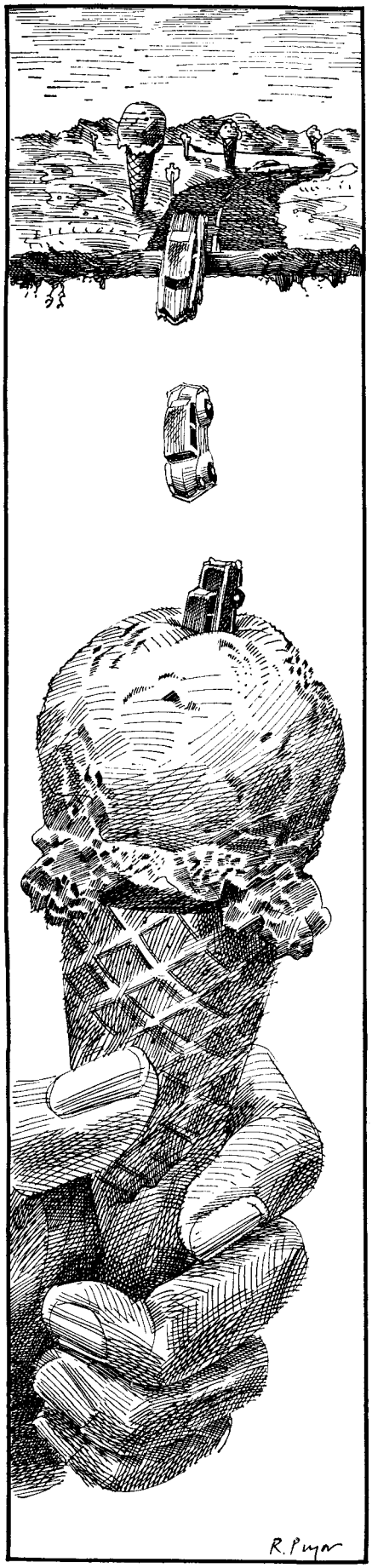

Some gravitate to Ho Jo's seeking refuge from the clamorous scramble.

the third was a sensuous, soft-featured Italian girl with a rich flourish of black mane. Two others could be seen in the kitchen, idly strolling around eating fried clams, as another—a doe-eyed brunette—moved from table to table switching the plastic flowers. At the Young Reporter's table she slowly leaned over to exchange blue flowers for orange. "Wednesday night is all-the-fish-you-can-eat night," she said, and winked (or blinked) and then moved on.

And it was at just that moment, in a blinding rush, that he comprehended the inscrutable secret. The elusive key to the whole Ho-Jo Cosmology was—the waitresses! Aha! It was *they* who constituted the only nonprefabricated element in the entire picture; paid performers whose chief chore it was to come onstage and go through certain motions designed solely to vex and bedevil the clientele and keep 'em coming back for more.

No sooner does the wary voyager settle into his seat than he becomes, at first annoyed, then exasperated, and finally entranced by the fastidious haphazardness displayed by these ladies-in-waiting. And soon, in myriad subliminal ways, he becomes *involved* in the whole environment—hooked, as it were. Though Ho Jo's dispenses an average of 150-million meals a year (each of which is standardized and precisely computed, with every single serving on every single plate carefully weighed and measured out), the impersonality of such a mass-scale operation is considerably offset by serving those meals within the context of an enormous and subtly orchestrated vaudeville show; the longest-running variety act, in fact, on the road today. Here at Ho Jo's—in a smooth and toothless setting deliberately designed to be forgettable, in an atmosphere suffused with music too inconsequential to register on the brain, in an establishment offering ice cream in twenty-eight flavors, of which the largest seller is always vanilla—here, amid all the trappings of tedium and ordinariness, there exists a positive *need* for programed chaos. It becomes an endearing feature of the place.

In an astoundingly short time Bernice returned with everything that had been ordered. She didn't spill anything or do anything remotely disruptive. It all seemed so out of keeping with the prevailing policy until she disclosed that this was her first day on the job—which obviously meant that she hadn't had time to get her act together.

At that point the red-haired madam strutted by, snapping her fingers and popping gum bubbles. "Hey," she said to Bernice, "that bunch that wuz in here, did they tip you?" Bernice said no, they hadn't. "Gawd," the madam snorted, and sashayed on down the aisle, plucking change out of the ash trays.

At about that time, too, several other members of the waitress troupe were going through a routine known as the "vanishing side order." Waitress No. 1 picked up several plates of food and carried them to a tableful of customers—carried everything, that is, save one side order of onion rings, which languished on the counter. Then, Waitress No. 2 picked up plates that had been prepared for another set of customers and, in so doing, grabbed the onion rings—which her customers promptly sent back. The rings remained on the counter until, before long, Waitress No. 3 ambled past and furtively snatched one, whereupon Waitress No. 4 followed suit. After the two had consumed the whole serving, they handed the plate to a bus boy and proceeded to focus their attentions upon a couple of attractive males at the ice cream counter. And so it went. And so, apparently, it will continue to go; since the waitress corps is self-perpetuating, with older members constantly training new recruits in the Ho-Jo Waitress Way.

Yea and verily, noted the Young Reporter to himself, Ho Jo's stands forth as a vast, enchanted loom, a kaleidoscope, a house of mirrors. He blinked. And suddenly—almost before he knew what was happening—he began to feel as if he were losing touch altogether. All at once he envisioned a stupendous back-sweep of landscape with hills, plains, and valleys all abloom with orange roofs. He began, at last, to sense the awesome presence of those mute forces at work beneath the surface, forming, molding, and contorting things so that, in time, the entire country would wake up one day to find itself parceled out among—and controlled by—Ho Jo's and Holiday Inns and Walt Disney Productions.

But beyond all this he glimpsed inklings of a larger truth: That, insofar as art influences and inspires other things to become like itself, *Ho Jo's Is Art*—art in inexhaustible reduplication, art at work upon the world, living art, or "concept art," which, according to Yoko Ono (who oughta know), becomes an artistic "reality" only after the viewer, or participant, becomes involved in its concept by doing something. And what they do is, they come here. And, in doing so, they thereby become integral components of the encompassing art form.

As he sat and watched, the entire scene slowly commenced to twist in and out of fantasy. Losing grip. "Someone you know wherever you go," claimed the motto. And, lo and behold, in practically no time, here they came, one by one, following the path of righteousness right

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through the glass doors: The Keystone Kops . . . Quinn the Eskimo . . . the Captain of the Titanic . . . the Seven Dwarfs marching in lock step and singing the "Horst Wessel Lied" . . . a gent in a parachute harness with a satchel full of greenbacks . . . a soiled dove from a dance hall . . . a pair of tap-dancing Druids . . . a dog on roller skates . . . a big blue eagle bearing the sign "NRA, WE DO OUR PART" . . . and next, emerging from separate limousines, all those Nixon Cabinet officers whose names nobody can ever seem to remember. More and more trooped forth and collected at the cash register, where they stood and clapped time as harlequin waitresses danced the *hora*.

And meanwhile, along the row of booths that lined the front windows, a dozen identical families ate in unison, raising their forks in perfect syncopation —all of them identical but for the fact that each individual's head had become a different-flavored scoop of ice cream.

The Young Reporter sank lower in his seat and began looking from side to side, waiting for the opportunity for himself and the Little Boy to bolt and run. He peered cautiously behind him and, as he did, was smitten by a jolt of unexpected and pleasurable recognition. For there, sitting in the booth behind, was the *girl*, the same one-and-only girl he had already seen twice before in two other restaurants that day. And here she was again! Only this time she was blonde and somewhat taller. Now he straightened up in his seat and struck an air of casual elegance. Now she glanced up from her bowl of fudge ripple. "Hel-lo," he said with considerable coolth and all that impressive, earth-shattering candor (for which he was so well known). □

The Bon Vivant Man

BY BARNARD COLLIER

WASHINGTON, D.C.—The Bon Vivant man acts so sad now that it disturbs you to be around him. He's a navy captain on "temporary active duty" in the Pentagon, and he wears a khaki uniform. His manner is frightened, his eyes are dull, and there is an uncertainty to his walk.

His job is to determine whether buildings belonging to the U.S. Navy are properly utilized; it is not important work. Since he is not allowed to hold private business interviews in the Pentagon, he conducts them afterhours in the offices of his Washington lawyers, if they can find an empty office for him. A year ago he was a reasonably rich and powerful man, and he wants his lawyer to sit in on all his discussions. But now the lawyer listens politely for a few moments; then, as he slips out the door, he says, "Look, Andy, I have something to do for five or ten minutes. You can watch your words yourself. You'll do a good job." He does not come back.

You probably remember the Bon Vivant man's story. Sometime after lunch on July 1, 1971, Bon Vivant, the New Jersey canned-soup manufacturers, went effectively out of business after 108 years. A field man for the Food and Drug Administration telephoned Andrew Paretti, the president. "There's a problem with V-141," the FDA man said.

V-141 was the code number of a batch of 6,600 cans of vichyssoise with the Bon Vivant label. It is now known to have included five swelled cans that contained botulism toxin. A banker named Samuel Cochran, Jr., who lived in Westchester County, New York, had died after eating soup from one of the bad cans, and his wife was seriously ill.

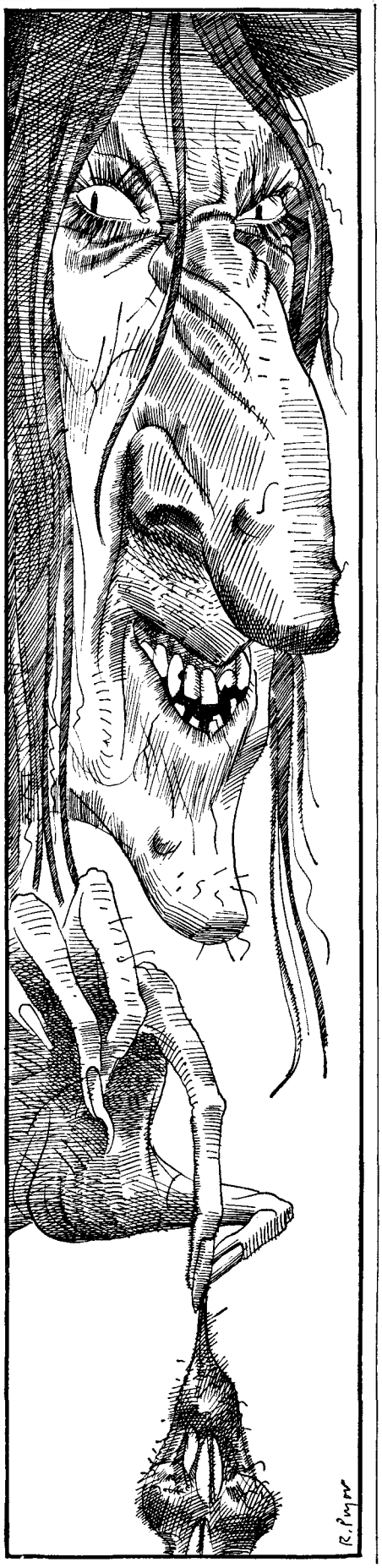
The newspapers and television got the story, and by the next day people all over the country wondered if they were going to die from their next can of vichyssoise. Vichyssoise jokes were popular for a while. Johnny Carson told how Mayor Lindsay and Governor Rockefeller were on such good terms that the mayor had sent the governor a whole case of Bon Vivant vichyssoise. Bon Vivant vichyssoise had been the soup of Americans who put on the dog. It had many buyers but, as Paretti found out, no friends.

Andrew Paretti was born in 1924 in the Bronx. His father and grandfather owned a quarry in Connecticut that provided stone for some of the buildings at West Point. Andy went to college, studied engineering, joined the navy, was sent to the Philippines with a Seabee construction battalion, and as an ensign helped build the docks at Tengon Bay on Okinawa. He stayed on in the Occupation.

Paretti recalls going ashore on Okinawa six days after the marines landed. "Sometimes," he says, "we would have to guard the perimeter. You would shoot into the dark. I may have killed somebody, but if I did I'm not aware of it. You were never aiming at anybody specifically, so you never knew if you killed anybody."

When he returned home Paretti got a master's degree in industrial engineering and eventually started a construction company that built one-story factories.

"They made me feel like my beautiful factory was a witch's cave making pots of poison for little children."



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He married Maria Castelli, went to work for her father, eventually becoming president of the company that had been founded by his wife's great-grandfather in 1863. Captain Paretti says his wife also worked for Bon Vivant; she was in charge, among other things, of quality control.

Bon Vivant went into bankruptcy twenty-six days after the FDA telephone call. Now, Captain Paretti has almost given up hope that the government will let his case go to court before he is forced to sell the factory in Newark for taxes. He says he has personal notes out "all over," but that he has "great bankers." The creditors' committee is being patient so far. They know the government is now paying him $1,933 a month, before taxes.

Before he went on active duty last February people thought he was safely a millionaire. "Then I was a respected man," he says. He sheepishly admits that he liked to live high off the hog. "But look what happened. The government ruined me. I was terrified. After that telephone call it was like I had started the Black Plague." Soon his name, his wife's name, his address, and his children's names had all been in the newspapers.

"They made me feel like my beautiful factory was a witch's cave making pots of poison for little children. It's a beautiful factory. I just finished building it in May, before it happened. You have to see the factory to understand how beautiful it is. It wasn't the factory that was at fault. It was *human* error. One tragic human error."

What happened was that the V-141 batch of vichyssoise was not left in the cooker long enough to kill the organisms that produce botulism toxin in dark, airless cans of nonacid foods. The undercooked batch escaped quality control and got onto market shelves. Captain Paretti blames a workman for the error. He also implies that his wife was somehow neglectful. But he does not blame himself.

The subject of the death of Mr. Cochran comes up. Captain Paretti says, "A human life is a terrible tragedy." Then he repeats the remark twice. The first time he says it to you, and the other times to himself.

Cochran's family is suing Bon Vivant's insurance company. "They should sue," Captain Paretti says. "Every company like ours has product insurance. Otherwise, what would you do if you hurt a customer? The insurance takes care of it. That's what everybody wants. That's what the customer wants. Nobody could stay in business without product insurance. Who the hell would buy a product that you didn't stand in back of with product liability? Nobody!"

Captain Paretti has come to fear the government as few men do who wear campaign ribbons for twenty years in the Naval Reserve. "The government will sell you out," he says.

The FDA hadn't inspected the Bon Vivant plant for six years. The FDA insists that it is short of inspectors and therefore regularly inspects only the most troublesome plants. Bon Vivant had not proved troublesome for some time. But when the vichyssoise killed Mr. Cochran the FDA took action to make up for six uninspected years. It requested the recall of every can of Bon Vivant soup for sale anywhere, as well as products that Bon Vivant made for other gourmet labels. FDA lawyers say that nearly 1.5-million cans were involved. The overall public impression the FDA created with press conferences and tons of press releases was that the government had acted in the nick of time.

It's hard to comprehend what all that means to a relatively small businessman whose corporation once employed fifty workers, had a B-plus Dun & Bradstreet rating, discounted all its bills, and didn't publish profits because it is family held.

But imagine what would have happened to the Campbell's Soup Company if the FDA recalled every can of Campbell's soup in the world, pending months or years of study and testing and litigation. Imagine the outcry of the giant corporation. As it happens, two batches of Campbell's soups—244,128 cans of vegetarian vegetable and 53,280 cans of chicken vegetable made in the Paris, Texas, plant—were found last fall to contain some cans with botulism toxin. The FDA ordered Campbell's to recall all cans of those soups, and Campbell's got most of them off the shelves before a Mr. Cochran ate one. There was comparatively little publicity, and there was no individual on whom one could pin the label, the vegetarian vegetable man.

Paretti's voice quavers when he says, "The government won't single any man out of a corporation. It's too big. But with Bon Vivant it was different. It was Paretti this and Paretti that. I couldn't believe it. I had supported the government so strongly. I was industry representative to foreign agricultural fairs. I was on foreign-trade missions. But the government ruins me, and, in Campbell's case, all they say is, 'The impossible happened.'

"It's an awesome government when it's looking down on you."

A few businessmen, whom Captain Paretti unconvincingly claims not to know, are involved in a peculiarly unbusinesslike protest against the actions of the government. It is called "Bring Back Bon Vivant!" Paretti seems to think it's neither macabre nor impossible. □

Barnard Collier lives and writes in Washington, D.C.

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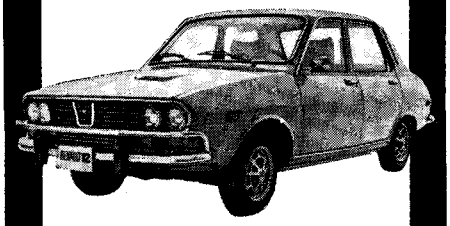

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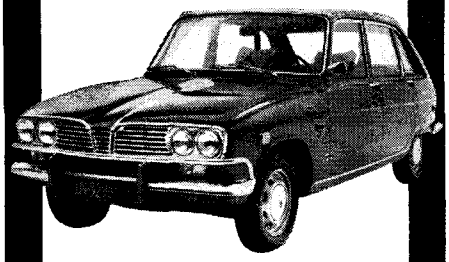

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Letters

Off to the Zoo

Barbara Ford's article "Creature Comforts at the Zoo" [*SR*, Aug. 5] is an accurate overview of the exhibition policies of contemporary zoos and commercial wildlife parks. Certain statements, however, evidence superficial research. For example, contrary to Ford's assertion, cheetahs have bred in zoos. Litters have been born in at least ten zoos since 1956, and many of the young have been successfully raised. Ford also states that "much zoo research revolves around figuring out ways to keep animals alive as long as possible." This is true and quite creditable but does not represent the full spectrum of research at zoos. Several U.S. zoos maintain full-time staffs of professional zoologists and have supported significant research contributions to our knowledge of behavior. Ford's statement that "zoo animals are atypical, even neurotic, subjects for the behaviorist" is simply erroneous. Zoo animals are excellent subjects for research in such areas as locomotion, cognitive processes, comparison of specific behavior patterns in closely related species, and detailed longitudinal study of the dynamics of social groups. Indeed, inferences about wild populations from zoo research must be drawn with caution. Additionally, some topics, such as predator/prey dynamics, are not appropriate for zoo study. Nonetheless, zoo research is providing meaningful information about animal behavior.

I was surprised at Ford's lack of emphasis on recreation as a function of zoos. Inexpensive family recreation, such as that to be had at zoos, is hard to come by these days. The enjoyment derived from zoos is unique. This is evidenced by citizen support of two major zoos in Cook County, Illinois, where an extensive system of municipal parks and forest preserves, several quality museums, and a number of other inexpensive recreational options exist. Recreation is not a sufficient justification for the existence of zoos, but it is elitist to deny that it is necessary.

Benjamin B. Beck
Chicago Zoological Park
Brookfield, Ill.

Artificial Creation

John V. Tunney and Meldon E. Levine have rendered us a service in their article "Genetic Engineering" [*SR*, Aug. 5]. Of particular interest was the fact that Senator Mondale's legislation to study the effects of genetic engineering, though nearly half a decade old, has yet to be acted upon. What lethargy! In 1818 a wisp of a girl named Mary Shelley wrote the harbinger to artificial creation in *Frankenstein*. Science is rapidly coming to terms with her imagination; but will our legislative bodies follow suit?

Michael G. Driver
San Francisco, Calif.

One of the largest problems would be to find the necessary John V. Tunneys, Paul Newmans, Rod Serlings, Roger Mudds, Prince Philips willing to stock a sperm bank as if the stock is not of high enough quality. What is the real use of creating such a bank?

Jim Lawbaugh
Malmo, Neb.

I'm eleven years old and recently learned about growing babys in a test tube. I think it is the most craziest idea I ever heard. We have problems now, and I think we should spend our time, money, and brains to iron them out.

My friends have agreed that, if people can have babys in test tubes just the way they want them, then they might want more and more, and we will have bigger population problems.

Erin Gioff
Kirkwood, Mo.

The Successful Experiment

Technology triumphed in Beverly Trask—
Conceived and grown in a Pyrex flask—
And visitors hurried from high and from low
To see the synthetic baby grow.
There were scientists, writers, and men of God,
And herds of tourists who Oh'd and Ah'd:
"Does it, honestly, have an immortal soul?"
"Can you change its pants in that goldfish bowl?"
"Is it given a soul at the very start
Or left without 'till it grows a heart?
Would it not be much safer to wait and see
"What sort of thing it turns out to be?"
"Can one say that it ever was born at all?"
"If not, then how can the draft board call?"
"The baby *looks* normal, but how can you know
At what stage—if any—it may cease to grow?"
But Beverly grew up accordingly to plan,
Becoming an utterly glamorous man,
And each girl who met him was certain that Fate
Had singled her out to be Beverly's mate.
But *he* wanted only to look for another
Girl who was just like his wonderful mother:
Completely transparent, hard, polished, and cold,
With vitreous charm, which would never grow old.
The softness and warmth of the girls he had seen

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Seemed awful, repulsive, and simply obscene.
Insatiable need for ceramic affection
Made him spend his life on a glassware collection:
Decanters and beakers and carboys and jars
And heavy glass beer mugs, like those used in bars,
And goblets and tumblers and glass figurines,
And punch bowls and bottles, in browns and in greens.
Not one was responsive. Not one seemed to care.
So he ended his life in a fit of despair.

William Palmer Taylor
Hamilton, Ohio

Female and Male

I read with interest Lynn Sherr's article "Democratic Women" [*SR*, Aug 5]. When I heard Eric Sevareid and Walter Cronkite pondering the necessity for female representation, I was angered. It was frustrating to hear them laboring under the idea that white males could be representatives of all the people. Yet, they questioned whether the women representatives could speak for anyone other than themselves.

Mr. Sevareid, for all of his wisdom regarding the equal representation of blacks, youths, and left-handed Lithuanians, seemed to forget one essential fact: All of these groups are composed of females and males.

Bonnie Curry
Pittsfield, Mass.

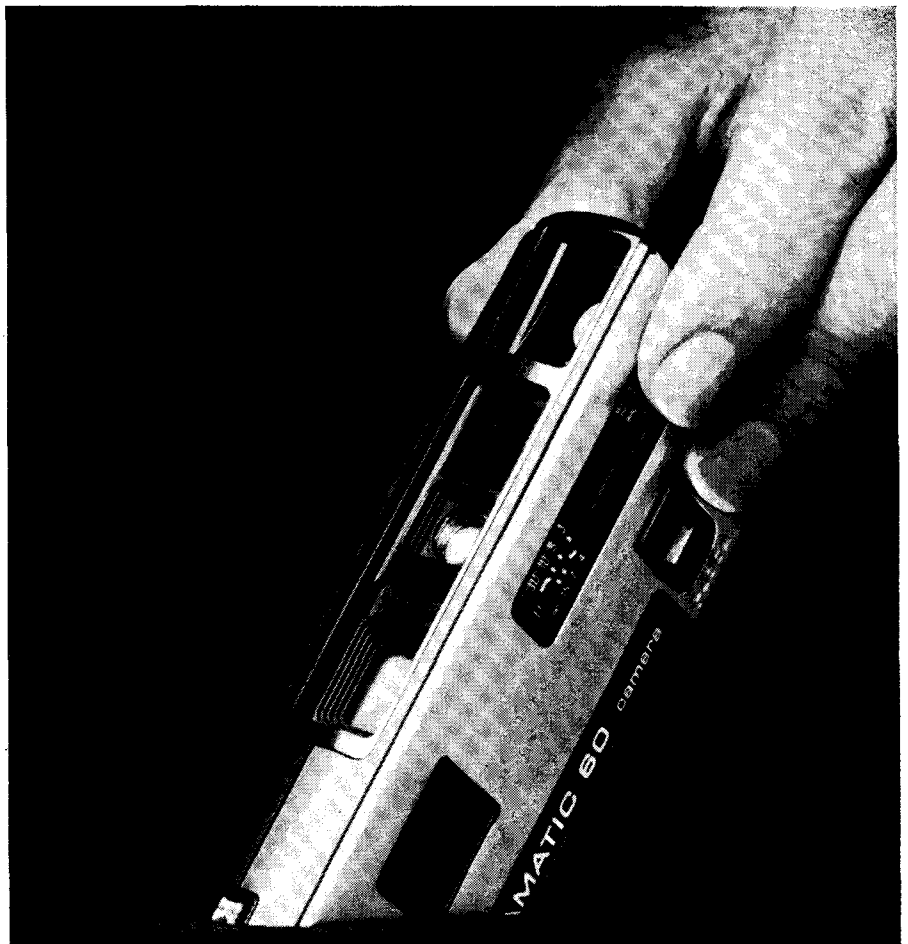
Itchy

Re: "Year of the Flea" by David Hendin [*SR*, Aug. 5]: What about us allergic people with allergic cats? Hendin stated that "alternative methods of flea control should be used" in cases of allergic reactions to flea collars. Such as what? Are there any insecticides available that are effective in exterminating fleas but that are nontoxic to animals, plants, and people? I have tried several commercial sprays and powders and one flea "stick," but we (the cats and I) still have fleas. Help!

Ellen Stern
Jamaica Plain, Mass.

Mailbag Note

Please address comments about articles that have appeared in *Saturday Review* to: Letters to the Editor. Inquires should be sent to: Reader Services. Poetry, article suggestions, manuscripts, and cartoons should be sent to our Contributors Department. The address for all of the above is 380 Madison Avenue, New York, New York 10017. Manuscripts, poetry, and cartoons will not be returned unless accompanied by a stamped, self-addressed envelope.



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Editorial

On Leaving New York

Cities have a way of subtly enmeshing people. They spin strands of friendship and love around us, they weave webs of memory and anticipation, and before we realize what is happening, we are firmly bound to them. Nor do we realize just how strong the bonds are until we try to break them.

This issue is the last that *Saturday Review*'s editorial staff is producing in New York. By the time our September 9 issue appears, our editorial headquarters will have shifted to San Francisco. The magazine's advertising staff and a number of editors are remaining in New York, along with the entire staffs of such sister organizations as Saturday Review Press and the Saturday Review Book Clubs. But for most of the men and women who edit and publish the magazine, home henceforth will be on the opposite coast, some 3,000 miles away.

By car, train, and plane, some two-score editors made the transcontinental move around the middle of August, accompanied by spouses, children, cats, dogs (including one St. Bernard), and mountains of cartons and crates, satchels and suitcases. Some set out from Boston or Washington or, in one case, from Rio de Janerio, but most began their journeys from New York. Others will follow throughout the summer and early autumn. All of us, I think, are delighted at the prospect of living and working in a city that is as cosmopolitan and physically beautiful as San Francisco. Yet, in spite of all this, few, if any, have found it easy to leave New York.

Given the city's rotten reputation, why should that be the case? After all, New York is crime-ridden, filthy, crowded, heartless. Its pace is frenetic, its natural beauty virtually nonexistent. It offers every conceivable creature comfort, but it seems to be dedicated to the proposition that one does not deserve such comforts unless he first endures incredible inconvenience in acquiring them. And, people say, things get worse every year. In all too many ways, they do. But consider these lines, written in 1906 by a minor poet named Byron Rufus Newton:

Purple-robed and pauper-clad,
Raving, rotting, money-mad;
A squirming herd in Mammon's mesh,
A wilderness of human flesh;
Crazed with avarice, lust, and rum,
New York, thy name's delirium.

Make it "mini-skirted" instead of "purple-robed," substitute "smack" for "rum," and Newton's coyly titled *Owed to New York* becomes an ode that could have been written last week.

Of course it's an awful place to live. But before the Visitors Information Bureau and allied agencies smite me with a carload of press releases certifying that New York is not only a summer festival but also a fall funfest, a winter wingding, and a spring spree, let me qualify that statement. If it is difficult to live in New York, it is equally difficult—and may prove more so—not to live there.

The architect Le Corbusier wrote, "A hundred times have I thought New York is a catastrophe and fifty times: It is a beautiful catastrophe." The city is too big and complex for human comprehension—and, as Mayor Lindsay and his predecessors have proved, for effective governance. It exudes power and arrogance, traits that repel many people but attract many others, tempting them to challenge the city's impenetrable indifference. To a degree unmatched anywhere, New York has everything and, it sometimes seems, everybody. It has the capacity not merely to satisfy but to surfeit any conceivable taste or appetite. It is an inexhaustible smörgåsbord. If one wearies of its restaurants, museums, theaters, libraries, shops, and, yes, parks, there are the people, some of them contentious, rude, and even menacing, but others, accomplished in virtually every field of human endeavor. And when the pace grows unbearable, one can, with a certain effort, retreat to spectacular mountains or pearly beaches, to the fragrant forests of the Adirondacks or the austere beauty of the Maine coast.

Then why leave? Partly because New York *has* so much, especially in the communications field. The headquarters of the three commercial television networks are within slingshot range of one another. The two leading American wire services are a dozen blocks apart. Most of the nation's leading book publishers are in New York, and all but a handful of America's major magazines are put out in Manhattan. There is such an incredible concentration of editors, writers, researchers, publishers, literary agents, and advertising men around midtown that one could transact all of his business within a radius of one mile, or less. This can, and does, lead to a good deal of fruitful cross-fertilization. But it can, and does, also lead to a certain amount of inbreeding—and parochialism.

A magazine is the product of a particular state of mind, not a particular place. But geography undeniably affects us. A continent away, facing the Pacific instead of the Atlantic, we may find a different perspective. Not necessarily a better one, but a different one. We may react somewhat differently to stories. We may even become aware of certain trends and shifts more rapidly than we would have if we had remained in New York, which—despite its reputation as America's pacesetter—sometimes finds itself insulated from events beyond the Hudson. We may find that none of these things are true. Even so, the attempt to decentralize the communications industry, however slightly, by beginning to build another center far from the Boston–New York–Washington corridor, strikes us as a worthy one.

Are we abandoning New York—or, to put it less delicately, bugging out? We think not. Our ties, personal and professional, will remain close, and we intend to renew them frequently.

That has made it no easier to leave. At the actual moment of departure, the city tends to look particularly beguiling. Let the day be clear and blue, and it is perfectly obvious why New York has long been such a compelling magnet—the thrusting, almost insolent towers standing shoulder-to-shoulder, the immense weight of concrete and steel and glass and asphalt—and people. From the air, the city is a great, elongated ship, girt by water, self-possessed, linked to lesser locales by spidery bridges and invisible tunnels, but still alone and aloof and proud of it. Even when the city is mantled in fog—or smog—it looks endlessly inviting to one who is leaving it, mysterious, secret, a mirage of shrouded spires soaring above the surrounding plains.

We could not say goodbye unless we knew that we could come back regularly to say hello.

Ronald P. Kriss

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Saturday Review of
SCIENCE

I CAN'T BELIEVE I SAW THE WHOLE THING!

BY ISAAC ASIMOV

Sometimes called three-dimensional, lensless photography, holography may be the greatest advance in imaging since the eye.

In 1971 the Nobel Prize for physics went to Dennis Gabor, a Hungarian-born British subject now working in America. He had earned the award in 1947, nearly a quarter-century before, by inventing a process of recording images in a way that reproduced far more information than could be done by any other technique known. Because it contained virtually all the information, Gabor named the process "holography," from Greek words meaning "the whole message."

For sixteen years the process and the name slumbered in technical journals. Then in 1963 two electrical engineers at the University of Michigan, Emmett N. Leith and Juris Upatnieks, carried the Gabor technique a step further and made the front pages of newspapers.

Where Gabor had worked with electron waves and had applied his technique to improving the images formed by electron microscopes, Leith and Upatnieks applied the techniques to light. Using the then newly developed laser, they produced a transparent sheet of film that was grayish in color, like an underexposed photographic film, and used it to form a three-dimensional image in remarkably fine detail, and they did it without lenses.

How was it done?

To begin with, let us consider photography, a process that is by now quite familiar to us (though when it was first developed over a century ago it seemed just as mysterious to the general public).

Photography depends on the ability of light to initiate certain chemical changes. Without going into detail, we can say that light causes a colorless solution of a certain type to precipitate tiny black granules. If the solution is mixed with gelatin, coated on a film, and allowed to dry, the entire film will turn dark if it is exposed to light briefly and then treated with appropriate chemicals.

Suppose, however, that the film is exposed to light only indirectly, that the light is allowed to shine on some object, and that only the portion of the light that is reflected off the object in the proper direction strikes the film. Some parts of the object will reflect light more efficiently than other parts will; some parts will reflect light directly toward the film, while other parts direct the light more or less away from the film; some parts will scatter the light that falls on them, sending it in many directions, while others will reflect the light without scattering.

The result of these differences in detail is this: The reflected beam of light will possess fine differences in brightness from point to point. When such a reflected beam of light enters our eyes, the pattern of varying light and dark is turned into a pattern of electrical impulses in the optic nerve. Our brain interprets the pattern in such a way as to give us an idea of the shape, the color, the texture, and so on, of the object that has reflected the light. We "see" the object.

Isaac Asimov, a writer of fiction and nonfiction and an associate professor of biochemistry at Boston University Medical School, is the author of more than 120 books.

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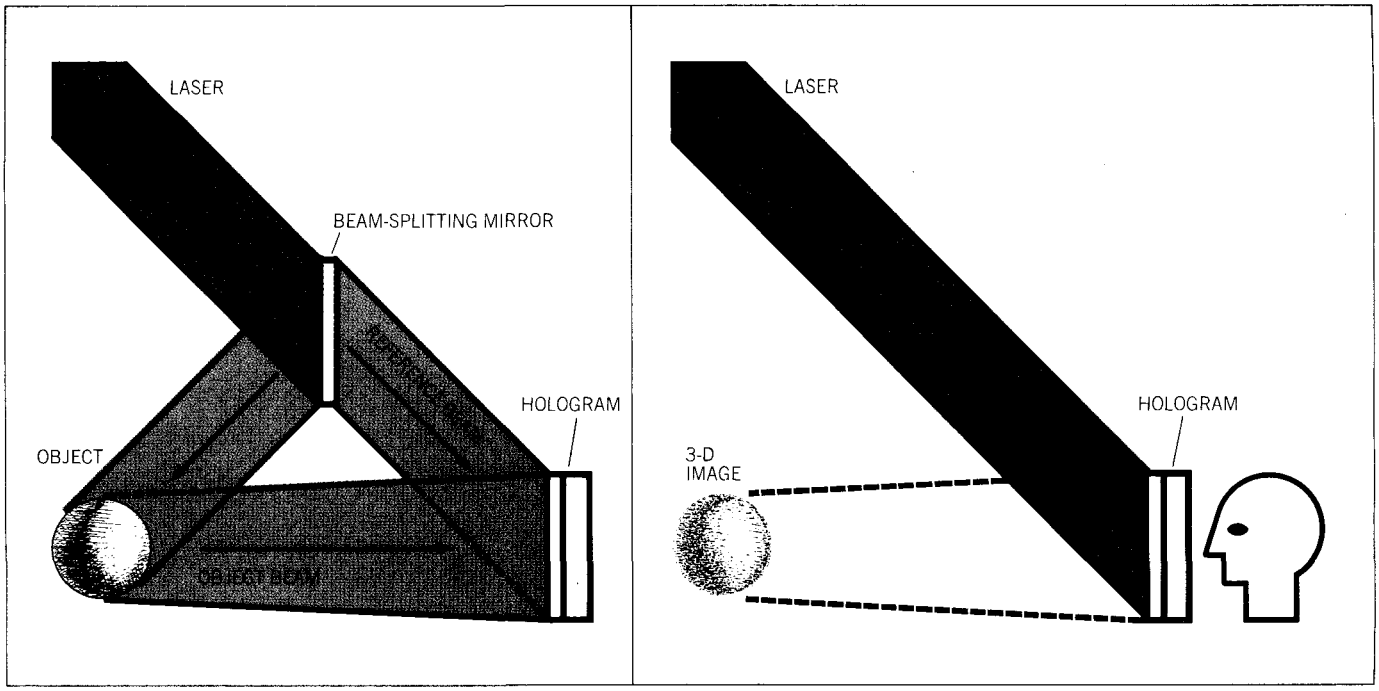

But what if the same reflected beam of light falls on the photographic film? The pattern of varying brightness in the beam would then reproduce itself on the film. At a point on the film where there impinges a portion of the light beam that is quite bright, a considerable amount of chemical change is induced. Upon proper treatment, that point becomes dark indeed. Where there impinges a dim portion of the light beam, there is little chemical change and that part of the film remains light.

Producing a proper pattern on the film requires that the film be enclosed in a box. This prevents light from striking the film from anything other than the object we want to record. Also, from each point on the object a sheaf of reflected light fans out. If all this light entered the opening in the box, each part of the film would be subject to some light from every part of the object and the result would be a featureless blurring of the entire film. To prevent this, a lens is placed in the opening. Light passing through the lens is collected into a focus and brought to the film in an orderly fashion. (The light-recording part of the eye, the retina, is also enclosed in a "box," the eyeball; and behind the eye's opening, the pupil, there is also a lens.)

The light focused on the film by the lens in the camera produces an image of the object that reflected the light—but in reverse. The brighter portions of the beam are recorded as dark spots on the film and the dim portions as light spots. The result is a "photographic negative."

If featureless light is made to shine through a photographic negative so that the light falls on a fresh film, the process is reversed again. All the dark places on the negative produce a dim portion of the beam passing through and are recorded as light places on the new film, and vice versa. The new result is a "photographic positive" that records the light-and-dark pattern of the beam exactly as it was reflected from the object.

If certain dyes are added to the film, advantage can be taken of the fact that some objects reflect light of particular wave lengths. If three images are superimposed on the film, each involving a different wave length of light, a photographic positive is produced that shows color rather than a mere dark-and-light pattern.

Assuming that the photography has been properly conducted, that the proper amount of light has entered the camera, and that the lens has been properly focused, one "sees" the object on the film as in reality, and the image is recorded for as long as the film endures.

But is the image really *exactly* like the reality? No, not really. Actually, the aspect of reality that the photographic image produces is quite incomplete. Suppose you look at an object—say two chessmen on a chessboard—through a small rectangular picture frame so as to make the object and its surroundings appear similar to the photographed image on the rectangular film. What then are the differences between the real object and the image? (Of course, you can touch and feel the real object and not the photographic image, but let us confine ourselves to visual properties only.)

Clearly it is possible to tell image from reality by vision alone. Suppose you shift your head slightly as you look at the real object through the frame. What you see also shifts. From one posi-

A simple technique for constructing a hologram is shown in the drawing at left. Light from a laser first strikes a half-silvered mirror that functions as a beam-splitting device. Half of the light passes through the mirror and becomes the "reference beam"; the other half is reflected off the mirror and illuminates the object, in this case a sphere. The reference beam and the light reflected from the object then come together to produce an interference pattern. The interference pattern is recorded on a piece of film, forming the hologram. To reconstruct the holographic image (right), a laser simply illuminates the hologram and the viewer then "sees" the object in three dimensions.

A holographic image (right) of the entrance to the RCA Laboratories in Princeton, New Jersey, is projected by a laser beam on a frosted-glass screen. The hologram itself is stored in the lithium niobate crystal in the center of the photograph. Crystals like this one can store literally thousands of holograms that can be read out one by one simply by rotating the crystal in laser light. This system may eventually become the basis of an information-storage system in which enormous amounts of data are locked in crystals the size of sugar cubes.

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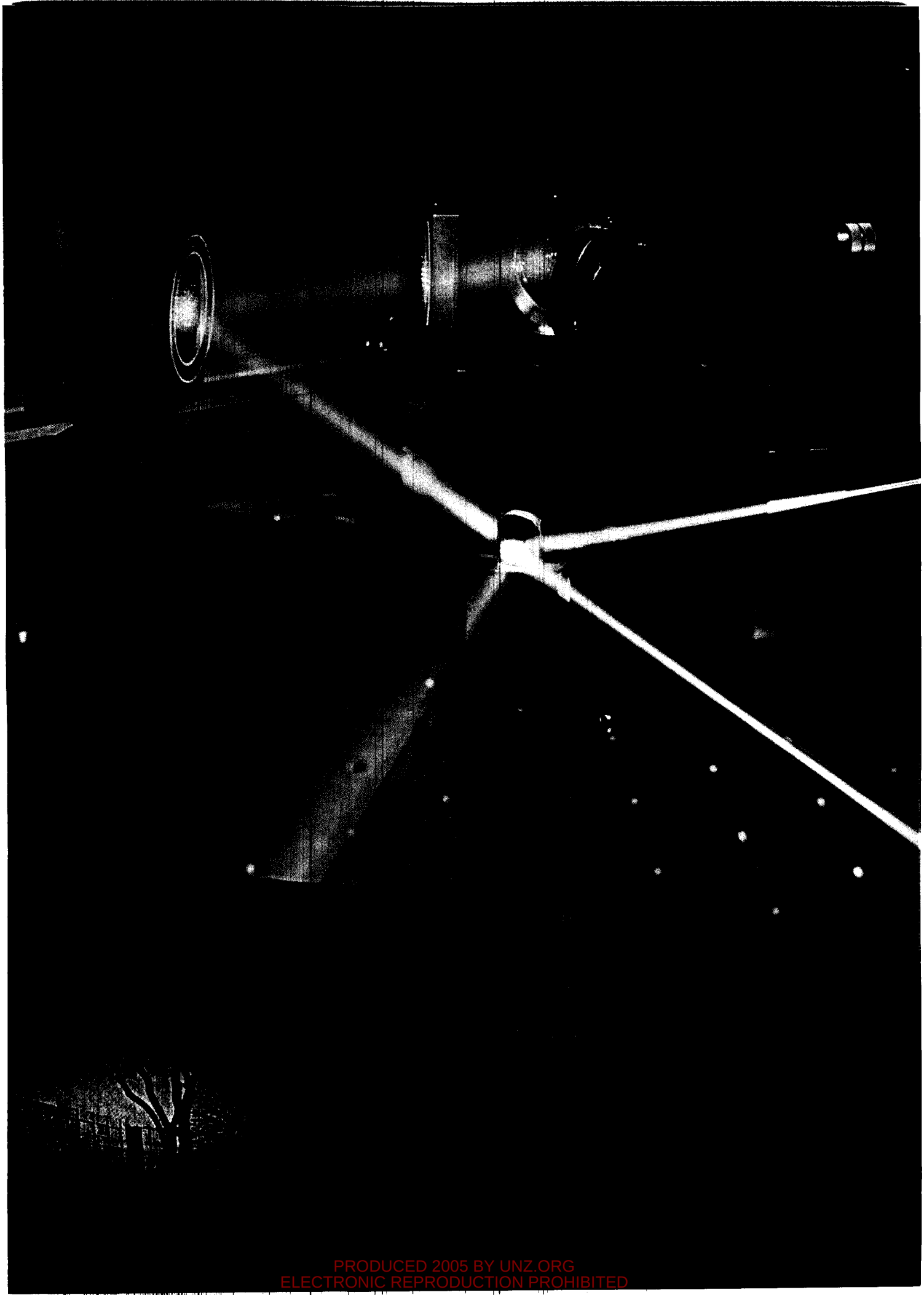

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tion, the nearer chessman may obscure the one behind it; but as you move your head, the farther chessman seems to move out somewhat from behind the closer one. You see the real object in three dimensions and can look around an obstacle by moving your head.

This is not possible with the film. The film may give an illusion of three dimensions; a more distant object will look smaller than a similar object that is closer; the lines of a chessboard may show perspective. Still, however clever the photographic image, the appearance of three dimensions remains an illusion and nothing more. No matter how you shift the position of your head, the image that you see never changes. You see one view and one view only.

Another difference is this. In looking at a real setting, you can focus your eyes on a nearer object, leaving a farther one out of focus, or, in reverse, you can focus on the farther at the expense of the nearer. You can move back and forth at will from one focus to the other. The image has a single focus. If the farther chessman is photographed a bit out of focus so that the nearer one is clear and sharp (or vice versa), nothing you can do with your eyes can bring the out-of-focus portion into focus.

The reason for these limitations of the ordinary photograph is that it is the recording of the intersection of the light pattern with a flat, featureless surface (the photographic film). The intersection, not surprisingly, has the properties of a flat surface, and in the process the reflected beam of light loses all its three-dimensional information. Photography ("the light message") is not holography ("the whole message").

But suppose you record the intersection of the light pattern with something more complex than a featureless, flat surface. Suppose you record the intersection of the light pattern with *another light pattern.*

A beam of light consists of very tiny waves. The pattern in a beam exists because some light waves have a greater amplitude than others do (they move farther up and down). This means the pattern is brighter in some places than it is in others. The pattern also exists because some light waves are longer than others, which means that the pattern shows different colors from place to place.

If two beams of light cross each other at an angle, particular waves in one beam may happen to match particular waves in the other. Both waves move up and down together. The result is that they reinforce each other. In combination the two move up and down farther than either would separately. The combination of waves is brighter than either alone would be.

In this way, when two patterns cross, the waves interfere with each other to form a new pattern of light and dark that wasn't present in either of the two original patterns. The new pattern is called an "interference pattern."

If you have an interference pattern, you can, in theory, work out two patterns that could, in combination, form the interference pattern. The trouble is that any of an infinite number of combinations could have formed the interference pattern and that there would be no way of deciding exactly which combinations did the job in reality.

Of course, if you knew one pattern of the two that formed the combination, you could calculate the other. To do this most easily, however, you would want the known pattern to be as uniform as possible. If one beam of light were simply uniform from one side to the other, with no variations in brightness or color, then the pattern of the other beam could be determined from the resultant interference pattern.

But how are we going to get a beam of uniform light—a "reference beam"? Ordinary sunlight won't do. Sunlight might look blank and patternless, but it consists of a mixture of many colors of light waves in a whole range of wave lengths. To work out the components of an interference pattern, where the simpler of the combining beams is as complicated as apparently featureless sunlight, is impractical.

But how about producing a single color of light by heating some chemical substance that will then emit a single wave length of light? Even that is not enough, for some of the light waves go in one direction, some in another. Even a beam of ordinary monochromatic (one-color) light is not really featureless.

In fact, when Dennis Gabor first worked out the techniques of using interference patterns, there was no conceivable way these techniques could be employed for light waves. Nowhere, either in nature or in the laboratory, did a beam of light exist in which all the waves were of exactly the same length and moving in exactly the same direction. Unless such a beam could be found or could be made, there was no reference beam blank enough to allow us to calculate the pattern of the other beam with certainty from the interference pattern of the two. Gabor used his technique for wave-forms other than light waves where a calculation could be made.

But then in 1960 the American physicist Theodore Howard Maiman constructed the first laser. The laser is a device that produces a powerful beam of light in which all the waves are of exactly the same length and in which

The image above was reconstructed from a double-exposed hologram of the foot of Donatello's John the Baptist, *a fifteenth-century wooden statue. The first exposure was made with the statue in its normal state, the second after the statue had been exposed to high humidity. The ridged effect is caused by expansion and contraction that resulted from the increase in humidity and indicates areas of weakness in the statue.*

Employees of RCA in Zurich, Switzerland, are now using holographic cards to gain entrance to the company's new technical center. The cards are inserted into a slot in a special box at the center's main entrance, where they are examined electronically. This holographic "lock and key" system is highly secure since the cards cannot be altered and since highly specialized equipment is required to produce them.

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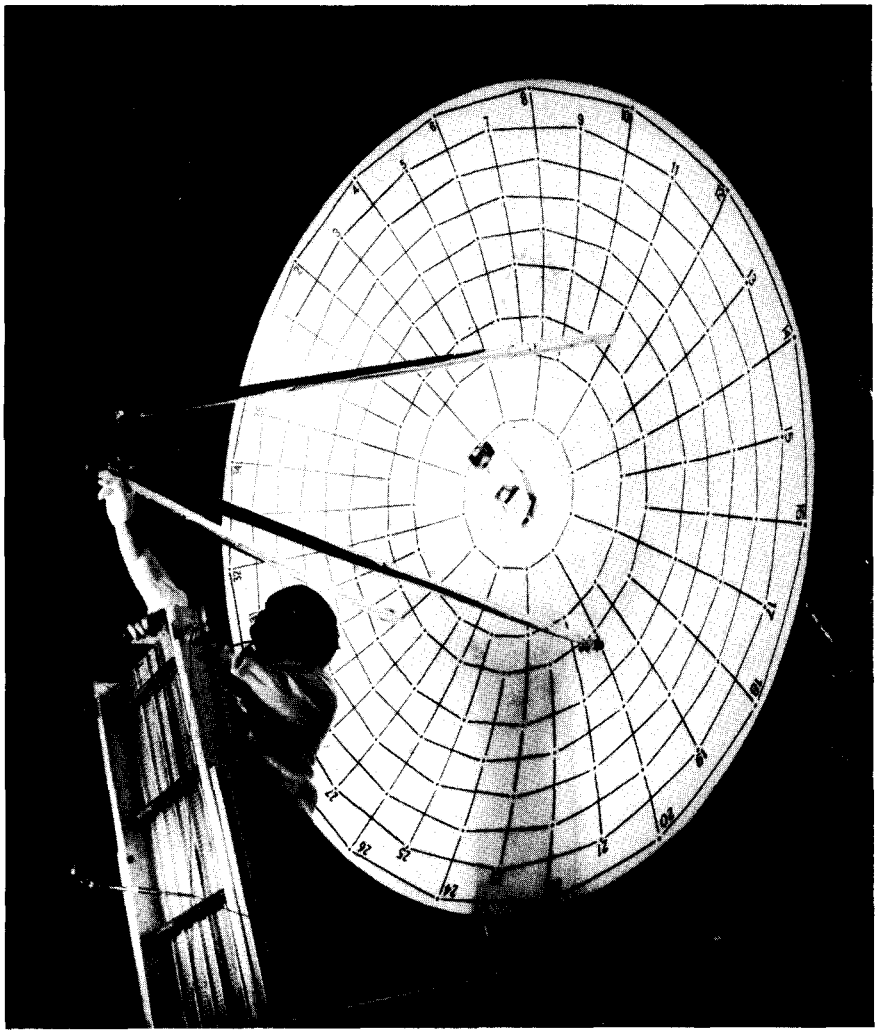

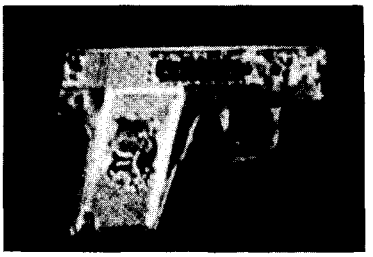

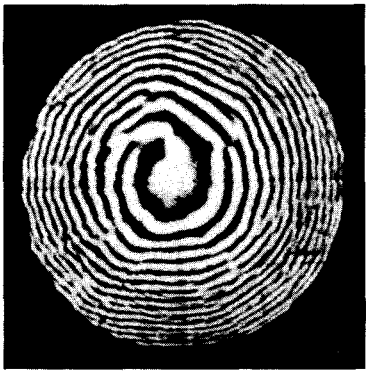

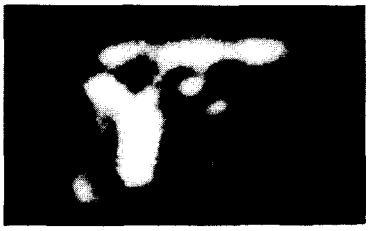

Researchers at the University of Pennsylvania, employing the principles of holography, have designed a new radiowave device that may someday be used to detect concealed weapons at airports. Using the device, they have produced what is called a phasigram (the bull's-eye pattern at center) of a toy gun (top) concealed in the pocket of a man's tweed coat. When illuminated by a laser, the phasigram produces an image of the gun (bottom).

The painted spacecraft microwave antenna at top left was tested by a double-exposure hologram technique. Between the first and second exposure the antenna's surface was deformed by slight finger pressure of the man seen in silhouette (lower left). This technique can detect deformations as small as one-thirteen-millionths of an inch.

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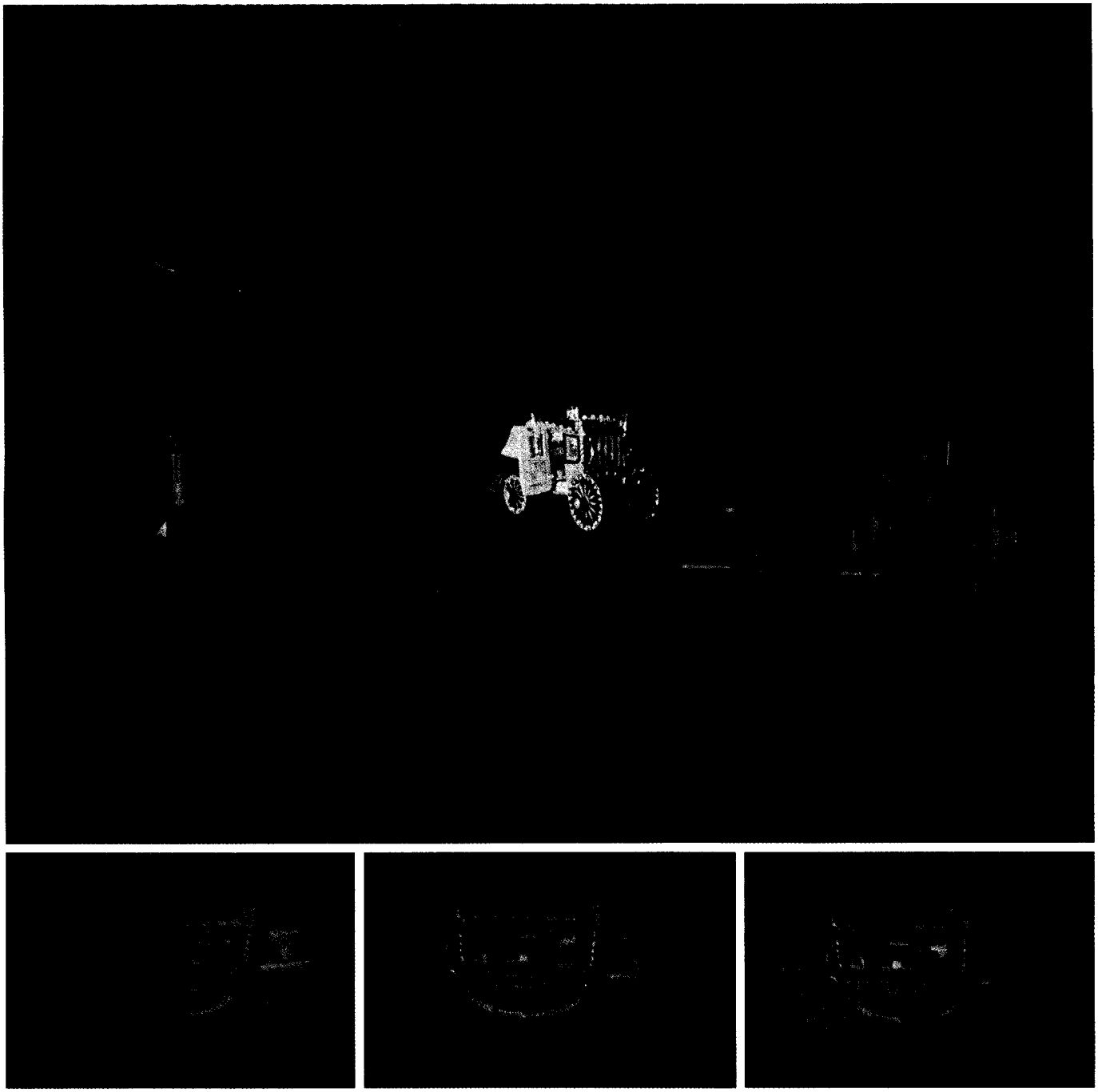

In the setup at top, a hologram is being made of the Fisher Body Napoleonic coach. To avoid the effects of vibration, the entire apparatus is resting on an eight-ton granite block. The photographs below present three views of a single holographic image of the coach, displaying the three-dimensional quality of the hologram.

all the waves move in exactly the same direction. At last the truly blank reference beam existed. The laser beam contains no pattern, no "information." When it crosses a reflected beam, all the information in the interference pattern can be referred to the reflected beam alone.

Suppose, then, we set up a situation as follows. A laser beam is made to shine obliquely on a piece of glass that is so treated as to allow half the beam to pass through, while the other half is reflected. The half of the beam that passes through continues to travel in a straight line until it passes through a rectangular opening. The half of the beam that is reflected strikes some object, and some of it is reflected again in such a way as to pass through the same rectangular opening.

The original laser beam (without a pattern) crosses over the richly patterned reflected beam and produces an interference pattern. All the information of the interference pattern would refer to the pattern of the reflected beam. If you were to look through the opening from the other side, you would see the object clearly despite the interference pattern formed with the laser beam.

However, instead of allowing the eye to look through the opening, suppose we put a photographic film in the opening. In that case a photograph will be taken of the interference pattern. All the light and dark areas will be re-

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corded. The pattern would be so fine, however—the alternate patches of light and dark so tiny—that nothing would be visible to the eye. The film would merely take on a slight grayness.

The successfully exposed and fixed film, carrying the interference pattern, is a "hologram."

Now suppose that a laser beam is made to shine on the hologram at the same angle as the original laser beam when the hologram was formed. The laser beam illuminates the same interference pattern that had been set up when, originally, it had crossed the reflected beam. (Techniques had been developed whereby ordinary white light can be substituted for laser light at *this* stage.)

If you look through the hologram illuminated by the laser beam, matters will be exactly the same (from the visual angle) as when you looked through the opening previously. You will see the object as if it were actually there. You will see it in its actual size, its actual appearance, and even its actual three-dimensional characteristics. The hologram is the whole message.

If, through the hologram, you are looking at the image of the two chessmen, one partly behind the other, and you move your head in one direction, you will see less of it. Furthermore, you can focus on the nearer chessman, allowing the rear one to go somewhat out of focus.

Of course, you can't do more to the image than you could do to the real object; it would be unreasonable to expect to do so. When you look at the real object through a rectangular opening, there is a limit to how far you can see around an obstacle. If you move your head too far in one direction or another, you can move yourself out of the range of vision through the opening. The hologram fixes the opening, and you can't move beyond it. In the case of the real image, you can move around and behind it to look at its rear but only at the expense of getting entirely away from the opening. Therefore, you can't do that in the case of the holographic image.

Then, too, you can expect no surprises in a single *photograph* of a holographic image. A photograph taken of such an image is only a photograph, quite two-dimensional, and in itself has no holographic properties. However, you can take different photographs of the same holographic image; you can take photographs at different focuses and from different angles. The individual photographs may be ordinary, but a number of them taken together will give you a hint of the versatility of the holographic image.

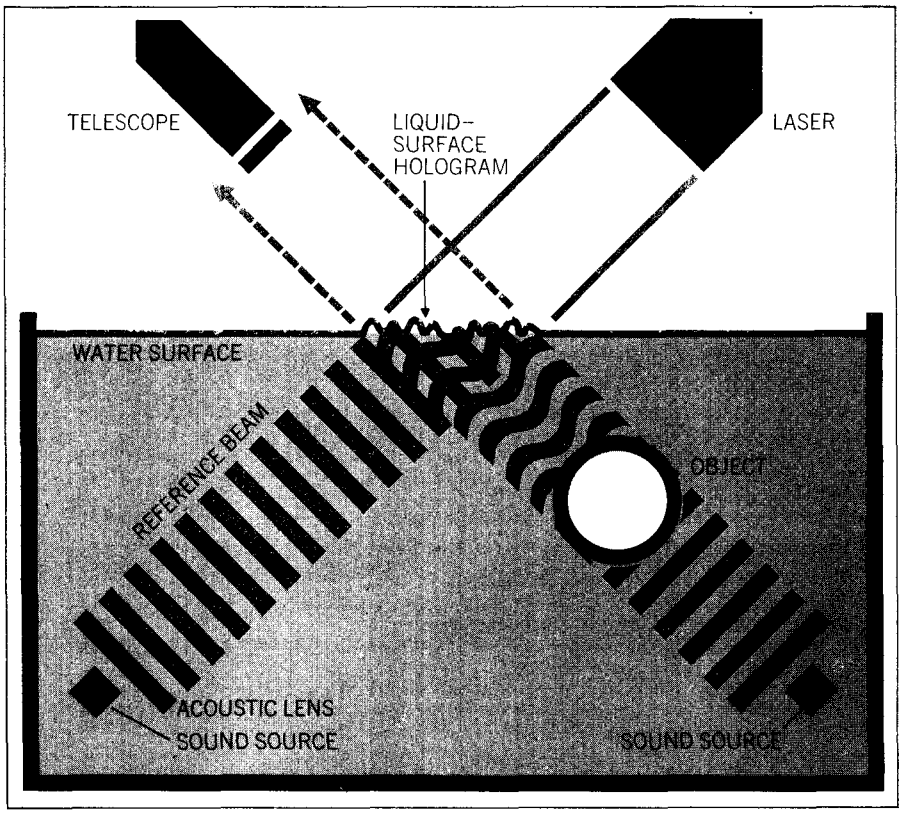
There are some important ways in which a hologram, which has recorded an interference pattern, differs from an ordinary photograph that has recorded a flat intersection of a reflection pattern. For one thing, there is no such thing as a hologram negative or a hologram positive. If all the white-and-dark areas of an interference pattern were reversed, it would still be the same interference pattern carrying the same information.

Then, too, a hologram is recorded without a lens. Different parts of the interference pattern are not focused on different parts of the hologram. Instead, every portion of the hologram is bathed in the crossing over of the two beams of light so that the interference pattern is recorded again and again on every part of the hologram.

If you cut a hologram in half, you are *not* left with two halves of a complete picture. Each half of the hologram can be used to produce the complete holographic image. If you tore the hologram into ten ragged pieces, each piece could be used to produce the complete holographic image. If you scratched the hologram, the part actually scratched would be spoiled, but all the rest would still produce the complete holographic image with no signs of a scratch upon it. If you punched a hole in the hologram, you would still get an image with no sign of a hole. Dust upon the hologram would not interfere either, because the portions not covered by dust particles would still do the work.

There is, however, a limitation.

The interference patterns on the different parts of the hologram—actually repetitions of the same pattern—reinforce one another. The more repetitions



Although the most familiar type of holography involves light waves, the principles of holography apply to any type of radiation. As a result, many researchers are now working with interference patterns formed by sound waves or acoustic holography. One technique of acoustic holography, called liquid-surface holography, is described in the drawing above.

In liquid-surface holography, two sound sources of the same frequency and the object to be holographed are immersed in water. As in optical holography, one source acts as the "reference beam" while the other strikes the object. These two beams come together at the surface of the water and cause a disturbance that is, in fact, the hologram. The object can then be viewed by reflecting a laser beam off the liquid-surface hologram as shown in the drawing. The applications of acoustic holography include medical diagnostics (tumors, for example, can be imaged since sound waves can safely penetrate the body), underwater and underground imaging, and nondestructive testing.

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there are of the pattern, the sharper and clearer the image is. As the hologram is torn into smaller and smaller pieces, or as it is subjected to more and more holes and scratches or to a thicker and thicker dust cover, the dimmer and fuzzier the image becomes.

You can see this if you imagine someone writing his name with a very light pressure on a hard pencil and with a very shaky stroke. The name may be too dim and shaky to make out. If he repeats the process, though, writing his name over and over again in the same place, there will be repeated places where the pencil strokes will cross one another and where the result will be a darkening.

In the end, after hundreds of repetitions, there may be a gray area around the main thrust of his pencil strokes, but the crossings will concentrate along the lines and curves the writer is trying to make. The result will be that his name will appear sharper, darker, and more even than any single pencil stroke could have made it.

If you then imagine the pencil strokes removed one by one, the whole name will still be there, but it will gradually grow dimmer and fuzzier. This is analogous to removing more and more of the pattern repetitions on the hologram by tearing, piercing, scratching, or dusting.

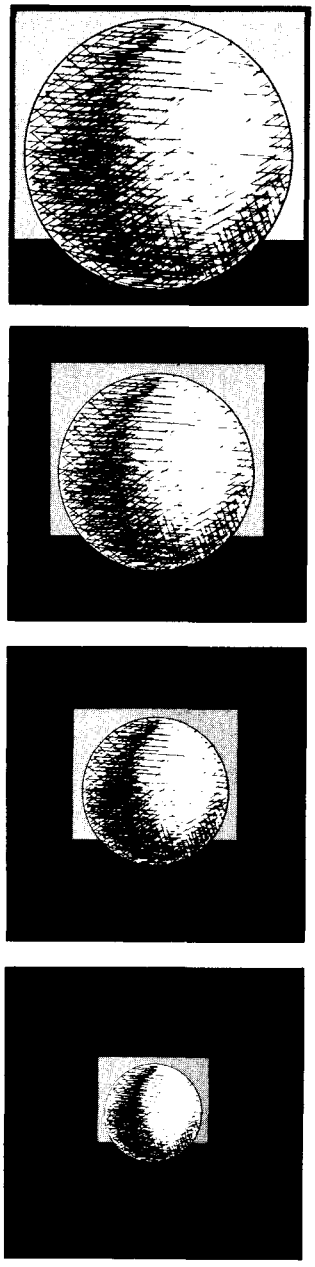
What are the applications of holography? To what use can it be put?

It is not revolutionizing the world all at once, for there is more to technological innovation than the mere working out of a new concept. It has to be made competitive; the concept has to be translated into hardware that will do something not only better than before but more conveniently, more simply, more cheaply, or all three.

For instance, holograms can be made of some structure in double exposure. The object being holographed is left unstressed the first time and is placed under some stress the second. The difference in the interference patterns produced represents defects of one sort or another in specific places in the structure being holographed. In this way holography can be used to test airplane wings, for instance, nondestructively. However, such objects can also be tested by X-rays and ultrasonic sound, and holographic techniques are not sufficiently better or cheaper or more convenient to cause a wholesale shift in nondestructive testing as yet.

Holographic techniques could be used to produce three-dimensional television or movie effects, but holography produces too much information for television or movie techniques to handle just yet. Holography must wait for the older systems to catch up to its advances.

Nevertheless, holography can do some things right now that cannot be done otherwise. One interesting application is its use in deblurring fuzzy photographs. It was the desire to do this that led Gabor to the original invention of the technique with respect to electron microphotographs.



The drawings above illustrate one of the most important features of holography, the fact that every part of a hologram contains all of the information. The top drawing depicts the image of a sphere seen through a hologram. As more and more of the hologram is masked, however, the entire image still can be seen. This feature is especially important in information storage since obliteration of part of the hologram—by scratches, tears, or cuts, for example—will not destroy the image.

Photographs can be blurred through known failings in the system used. However, a laser beam can be passed through the blurred photograph, and an interference pattern can be produced that will cancel out the effects of the failings. A new photograph appears in which the blurring has been greatly reduced.

The technique has been applied very successfully to the photographs taken by electron microscope. Such deblurring extends the range through which electron microscopes can produce successful magnifications. By use of the technique, the double helix of virus nucleic acid was shown for the first time, and eventually single atoms may be made out.

It is also quite possible that holograms will be employed for the storage of information, a use for which their three-dimensional properties are not needed. For instance, holograms might replace ordinary photographic techniques in many cases, since the holograms would be insensitive to scratching and minor damage that would be sufficient to spoil ordinary photographic film. TV cassettes may therefore become holographic eventually.

Then, too, hundreds of pictures can be recorded holographically on a single piece of film. When laser light is made to shine through the film at a series of angles, each differing slightly from the next, a whole series of different interference patterns is formed with a whole series of different objects. These can then all be projected as a laser beam shines on the completed hologram, first at one angle, then at another. Image after image appears and the *Encyclopaedia Britannica* might be stored on a hologram the size of a sheet of typing paper—a sheet that under ordinary photographic techniques could record but one image and no more. This same ability to store enormous quantities of information may result in the development of holographic memories for computers.

However, it is useless to attempt prediction too closely in order to see what holographic techniques might do, for instance, to aid medical diagnoses or surgical methods. Technology often takes surprising turns. Holography is a versatile means of handling large quantities of information, and exactly how it may be applied could depend on ingenious discoveries that would prove as sudden, as unexpected, and as productive as Gabor's original inspiration proved to be. □

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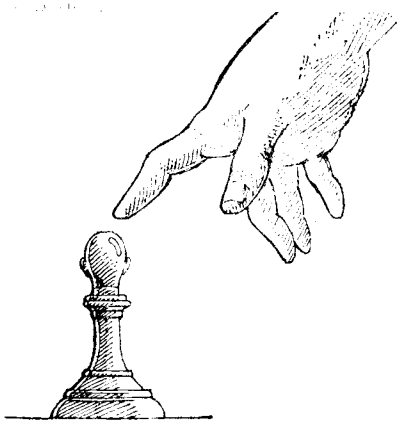

THE PRIZE

The whole of my remaining realizable estate shall be dealt with in the following way: The capital shall be invested by my executors in safe securities and shall constitute a fund, the interest on which shall be annually distributed in the form of prizes to those who, during the preceding year, shall have conferred the greatest benefit on mankind. The said interest shall be apportioned as follows: One part to the person who shall have made the most important discovery or invention within the field of physics; one part to the person who shall have made the most important chemical discovery or improvement; one part to the person who shall have made the most important discovery within the domain of physiology of medicine; one part to the person who shall have produced in the field of literature the most outstanding work of an idealistic tendency; and one part to the person who shall have done the most or the best work for fraternity among nations, for the abolition or reduction of standing armies, and for the holding and promotion of peace congresses. The prizes for physics and chemistry shall be awarded by the Swedish Academy of Sciences; that for literature by the Academy in Stockholm; and that for champions of peace by a committee of five persons to be elected by the Norwegian Storting. It is my express wish that in awarding the prizes no consideration whatever shall be given to the nationality of the candidates, so that the most worthy shall receive the prize, whether he be a Scandinavian or not.

ALFRED NOBEL, NOVEMBER 27, 1895

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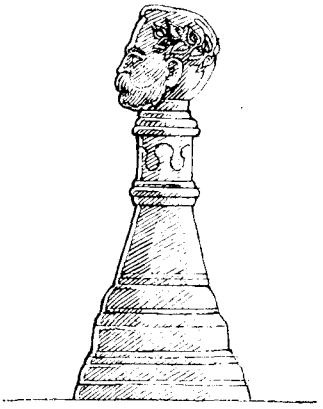
BY WILLIAM K. STUCKEY
Drawings by Chas. B. Slackman

Scientific achievement alone cannot secure the most prestigious and influential of the Nobel Prizes. An acute sense of politics, a clean record, and a careful adherence to Stockholm protocol are also elements in the competition.



The remarkable radio telescopes of England's Sir Martin Ryle have spotted most of what there is to see in the universe. About all they have not detected is a Nobel Prize for Sir Martin, and that may well be along shortly.

Scientifically, these instruments have produced data that shows, as interpreted by Ryle's brilliant group of physicists and mathematicians at Cambridge University, that there are no more radio galaxies or quasars beyond an extremely distant region of the cosmos. They assume that, if there aren't any more radio galaxies, there are no other types of galaxies or cosmic objects to observe.

Ryle's group, then, has seen the cosmic Edge. The universe does not flow on forever, but is finite. Beyond the Ryle Boundary—nothing.

This introduction of scientific precision into the otherwise fuzzy and armchair-chatty study of the size, age, and origin of the universe (cosmology) is by no means the only accomplishment of the Ryle group. His number-two man, Anthony Hewish, for example, was a principal discoverer of the strange and powerful celestial objects called pulsars. Both men, consequently, have been repeatedly nominated for the Nobel Prize in physics. If at least one of them wins—and Stockholm scientific gossips say a win is a sure thing in the next few years—it will be the first time a physics prize is awarded for findings in astronomy.

But scientific achievement itself is not enough to win a Nobel Prize. One also must be expert at the subtle game of *Vetenskaps*, and Ryle, whether he is conscious of it or not, is a master.

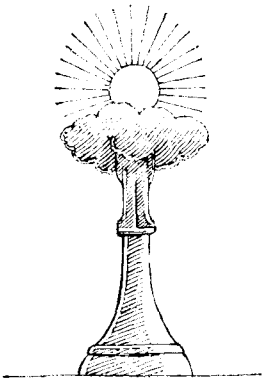
You must understand two preliminary facts about Vetenskaps before learning the rules of play. First, its name is simply the Swedish word for science. Why Swedish? As antipasto is so essentially Italian that it must be described in the mother tongue of Italy, as *joie de vivre* loses meaning when translated from the French, so is science peculiarly Swedish. It is Swedish for no other reason than that the Nobel Prizes are strictly a Swedish affair, and Nobel Prize winners—Vetenskapsers—sit at the top of the world-research hierarchy.

Second, it is important to win at Vetenskaps, for winning can bring the following:

- Approximately $100,000 in tax-free cash.
- A process of wizardization that sets the winner apart from other men, at least in the eyes of the nonscientific public.

- Profitable offers from publishers for books by the winner on the meaning of his life, the destiny of man, the restructuring of society, and the character of life in the year 2000.
- A wide variety of job offers ranging from university presidencies to important governmental posts, or at least, as one winner described it, "a lifelong bread ticket."
- Invitations to advise the government not only on a winner's own scientific specialty but on matters outside his field as well.
- The privilege of calling any of the handful of obscure Swedish professors, who set the rules of Vetenskaps and who are the sole judges of who wins or loses, by their first names.
- The right, even the duty in America, to sign large ads in the *New York Times* urging governments to stop doing something or to release someone.

Vetenskaps is also important to everyone who is forever forbidden from playing it; that is, all those human beings who are not scientists. For the winners, by using the rights and opportunities that stem from winning, can change the planet and the various creatures that live upon it. Among such changes have been the development of the several bombs of nuclear and thermonuclear character, and the genetic techniques that (some day) may alter the form, behavior, and intelligence of the human race.



Examples of Vetenskapsers who have changed the course of planetary events range from the humane to the horrendous to the ridiculous. Although other scientists failed to convince President Roosevelt to begin development of an atomic bomb to quell Hitler in World War II, a most prestigious Vetenskapser, Einstein, succeeded. When West Germany was considering the construction of its own nuclear force in the 1950s, one of the senior living Vetenskapsers, Werner Heisenberg of Munich's Max Planck Institute, stopped this movement with a public campaign. And while virtually the entire medical profession condemned a 1970 book on how to cure the common cold as being without scientific foundation, the public nevertheless made it a best seller. Its author—Linus Pauling (chemistry, 1954, and the Peace Prize, 1962)—after all, had won at Vetenskaps.

Vetenskapsers who have held positions of true power include Frederick Joliot, French scientific (and nuclear) advisor following World War II; Glenn Seaborg, until recently the world's most powerful Vetenskapser as long-time chairman of the U.S. Atomic Energy Commission; Isidor Rabi, former science advisor to NATO and a developer of the hydrogen bomb; and

William K. Stuckey is a freelance writer who, for the past year, has been doing research in Stockholm, London, Paris, and Munich for a book about the Nobel science prizes. He was formerly the editor of *Reports on Research* at MIT and science editor at Northwestern University.

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England's P.M.S. Blackett, science advisor to former Prime Minister Harold Wilson and former president of what some consider to be the world's most important scientific organization, the Royal Society. Appropriately enough, the Swedish government's principal science advisor, Arne Engström, who has jurisdiction over military as well as purely scientific decisions, is a key member of the Nobel Prize selection apparatus.

But Vetenskapsers are involved in important nonnuclear affairs as well. A long line of Nobel laureates who have explored the intricacies of how life works on the molecular level has been produced in the past decade-and-a-half. Their findings have the potential of reducing genetics to an engineering technique. Many laureates have already warned that a molecularly oriented Dr. Strangelove might assist an evil future government to create a race of docile, Brave-New-World ninnies. Such research must be carefully monitored by public watchdogs and "experts," they have warned. That Vetenskapsers would be the best watchdogs has been indicated by, among other things, the appointment of Nobel laureate John Kendrew of England as the acting, and probably permanent, director of a proposed massive new center of genetic and biomolecular research at Heidelberg. When and if any state undertakes a project in genetic engineering, it is an excellent possibility that a Vetenskapser will guide the program.

When Vetenskapsers say something, non-Vetenskapsers listen. Sir Martin Ryle has an impressive future before him.

But there are other Nobel Prizes. Why don't the winners of *Litteratur*, or *Ekonomi*, or of *Fred* (Peace) rise to such powerful heights? A literary winner will sell many books and perhaps be offered a writer-in-residency at a university, but he does not receive regular invitations to the White House or the Pentagon since he lacks the shamanistic aura. His life work can be understood by a large public and his expertise is less relevant to the technological prowess of governments. Peace winners also gain little increased influence, since the awards can be easily dismissed as too political, or too bland—after all, how many divisions does the International Red Cross, several times a winner, have? Economics is a new prize and in Sweden does not hold the same stature as the other prizes since it was not authorized in the will of Alfred Nobel. (As the economics prize places more history behind itself, however, its winners may well rise to Vetenskaps-like power levels.)

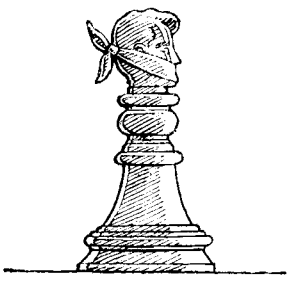
But now, about the ways to win at Vetenskaps, with Sir Martin Ryle's life as guide:

Rule 1. Discretion for now: You can talk after you win.

Alfred Nobel, the Swedish inventor of dynamite whose will of 1895 established the prizes (which began to be awarded in 1901), had many peeves. He disliked the men who stole his chemical patents, and he hated liars and cheats in general. He hated war and so invented high explosives to make it so sanguinary and unprofitable that all nations would forsake it. He also felt great disgust for those he described as "publicity seekers" and expressed this many times in writing with phrases such as: "Second to agriculture, humbug is the biggest industry of our age."

Nevertheless, he wrote nothing in his brief will to indicate that his "heirs"—the Swedish governmental, financial, and academic elite who established the Nobel Foundation to administer the prizes—should avoid publicity or otherwise conduct prize selections in secrecy. The heirs more than made up for this omission.

Under Nobel Foundation statutes, every document that the Swedish prize judges have prepared since 1901—documents showing who was nominated, who won, who didn't and why—have been shielded fanatically from outsiders. That such papers represent probably the most complete record in human history of value judgments in science, with high potential value to educators and research administrators who seek guidelines for evaluating this magical calling, is a matter of no interest to the head Vetenskapsers. Secret they are and secret they stay (although some Nobel judges recently agreed to open the records—to carefully screened individuals—after a lapse of fifty years). The most common reason given is that secrecy protects the selectors from lobbying by overly zealous scientists. It also permits a frankness that would be impossible under more public circumstances.



If a closed-mouth policy is good for the Nobel selection archives, it is good for other things as well. Even today the prize citations issued by Stockholm to explain why a scientist won at Vetenskaps are cast in sparse and often vague language. The classic example is the official explanation for awarding the 1933 prize to Paul Dirac. Nothing was mentioned about Dirac's monumental theory of antimatter or his reconciliation of relativity with quantum mechanics, much less their meaning or significance. He was named a Vetenskapser, instead, for "the discovery of new productive forms of atomic theory." Educational value?

Thus Sir Martin Ryle—the scientist whose radio spottings led to the discovery of the first quasar, whose ingenious design and computer techniques produced telescopes of incredible power and range, who has seen the Edge—may consequently be enshrined in Nobel prose for "his contributions to radio astronomy."

While "tight lips" are encouraged for anyone who wants to be a winning Vetenskapser, it is permissible to talk to fellow scientists about your work. It is even better to publish in professional journals. It is top form to take a Swede of Vetenskaps level to lunch and tell him everything he might want to know (except how much you want to win—they don't like that). But be very careful when talking to the nonscientist, particularly to journalists. That might be construed as publicity seeking. No one must be allowed to talk his way, through the press or public relations, to the prize. No image making is allowed, since the best Vetenskaps image is no image at all. Big mouths dissipate mystery, and mystery is a foundation of Nobel influence.

Werner Heisenberg, West Germany's senior laureate (physics, 1932) and a most influential Vetenskapser, made the strongest case yet for mystery when he was discussing the secrecy policy with a journalist last January. Nobel records, he remarked, must be kept secret so that prize judges may discuss not only the scientific work of a candidate but also his personal behavior. A serious crime in the background of a candidate, for example, should eliminate him, no matter how brilliant his scientific work.

What crimes? Murder, rape, forgery. But mentioned first, and apparently the most serious of all—publicity seeking.

Sir Martin Ryle has committed none of these crimes. In talking to nonscientists, he is shy. Please, no personal questions. As to the press, both he and his number two, Professor Hewish, feel that even the distinguished British scientific journal *Nature* is little more than a research-oriented form of *Time magazine*.

The best illustration of Ryle's staying within channels and talking to Vetenskaps-level peers concerned the Hewish subgroup's discoveries of pulsars in 1967. The read-out from Hewish's radio array indicated a most unusual object had been spotted. It was

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small; yet it regularly produced a tremendously powerful radio signal. Further checks showed it was outside of the solar system. Was it a beacon?

"I went to Martin immediately," Hewish recalled. "We quite seriously believed that this signal might be from a device, perhaps a navigational beacon, fashioned by an extraterrestrial race. Before we finally determined it was a natural object (some days later), we were extremely puzzled about what course of action to take. This thing was putting out power about a million times stronger than anything developed on earth. If *they* were signaling, did we want to let *them* know where we were? This was not astrophysics. This was astropolitics."

Alternatives were weighed. Go to the press? Mad. A note to *Nature*? The matter was too important for that. Notify the government? No, the news might seep out and create a public panic of a War-of-the-Worlds type.

"In the end we decided the proper thing to do was to take the news of this thing to the Royal Society," Hewish said. "Fortunately, we did find it was a natural object before reporting it to the society, though if we ever were to encounter an extraterrestrial message, we would most certainly go straight to the society with it."

The Royal Society. The oldest scientific society in the world and, according to Sir Peter Medawar, Nobel Prize in physiology/medicine, the most important. Newton was a former president. The current president is Alan Hodgkin, Nobel laureate; secretary and vice president, Sir Bernard Katz, Nobel laureate. Other laureates who are members, including foreigners, number fifty-three. Additional members of special interest include three Nobel Prize judges.

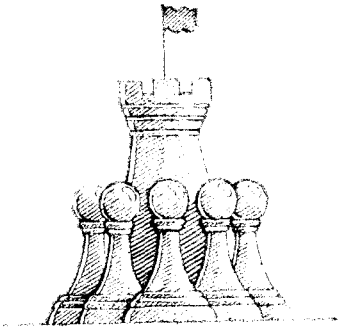
In 1975 a new president of the Royal Society will be selected (secretly, as are all members). Tradition dictates that the next head should be a physical scientist. Among the well-known candidates are Sir Bernard Lovell of the Jodrell Bank radio astronomy installation, and theoretical astrophysicist Fred Hoyle. But Lovell is too much in the public eye with his numerous past announcements of space launchings, and Hoyle recently left Cambridge in a huff—"a volatile man," according to a fellow astronomer, "and one who talks a lot"—because his candidate did not get a key Cambridge professorship (a Ryle man got the post).

There would be no doubt in the William Hill Organization or in City Tote, London's leading bookmakers, as to what English physical scientist is now the odds-on favorite for the Royal Society presidency.

You can bet that the smart money will be on Sir Martin.

Denying the obvious is another routine way of adhering to the antipublicity dictate of Vetenskaps. A splendid example of this was given by Sir David Martin, the executive secretary of the Royal Society, when asked about the interactions between the society and the Nobel apparatus. His reply: "There is no connection whatsoever, and I do not wish to discuss it."

This suggests the existence of a corrollary here of the following nature—*Deny publicly that the Nobel Prize apparatus has any connection with real power or with any of the other things it is connected with.*



Rule 2. Work with certain people in certain laboratories in certain countries.

If Vetenskaps were played on a game board, the pieces—candidates for the prizes—would look something like chessmen except that, according to rule number one, they would have no mouths. Picture the board as a map of the earth but with Stockholm, for game purposes called "Valhalla of Vetenskaps," in the center. The object is to move a piece safely through a maze of obstacles to Valhalla.

In examining the seventy-one-year-old history of the game, one finds that the vast majority of pieces that reached Valhalla started their journeys from seven discrete points on the board. Two of them have conventional geographic names, Paris and Moscow. The remainder are more important in numbers of Vetenskapsers and Vetenskaps-makers (those invited by Stockholm to nominate prize candidates) and so are labeled in a more grandiose manner, as follows:

Los Berkliego. This is the U.S. West Coast complex that consists of the California Institute of Technology in the Los Angeles suburbs and the vast University of California network extending from San Francisco–Berkeley to San Diego. Adding Stanford, its population is twenty-one Vetenskapsers.

New Harvington. This golden crescent of Vetenskaps-rich universities—fielding thirty-nine Vetenskapsers—extends from Harvard through MIT, Yale, Columbia, Cornell, and Princeton, to the National Institute of Health and other science-funding agencies in Washington. Special note should be made of New York's Rockefeller Foundation, which has granted research fellowships to twenty-five Vetenskapsers (before they Vetenskapsed)) as well as to 152 Swedish scientists.

Midamerago. While this Chicago-centered region can show only eight Vetenskapsers at present, it would score far higher had not many of its brighter men left for Los Berkliego and New Harvington.

Kaiser Planck. Numbers of Vetenskapsers are vague here. Both the borders of Germany and the names of its universities have changed markedly during the Nobel Prize years because of the wars. But take the multicity campus of the Max Planck Institute, add its predecessor, Kaiser Wilhelm Institute, and a number something like seventeen emerges. Without political convulsions, its Vetenskaps score would have been far higher. Indeed, Germany dominated the science prizes before World War II and before the emergence of Los Berkliego, New Harvington, Midamerago, and . . .

Royal Londoxbridge. Oh, yes. The cerebral seedbeds of Oxford, of Cambridge, and of London's Imperial College of Science and Technology—united by the all-pervading and all-but-invisible network of the Royal Society—have produced twenty-six Vetenskapsers (not to count the twenty-nine additional foreign members of the R.S.). Note that twenty-five are Royal Society men, the only non-R.S. Vetenskapser being Ernest Walton of Ireland, an early protégé of one of the grandest of Vetenskapsers, Ernest Rutherford of Cambridge's Cavendish Laboratory, which also produced a man named Ryle.

Sir Martin Ryle made an extremely correct opening move in this game of games during the late 1930s when he enrolled in Oxford to study physics, obtaining his degree in the war year of 1939. Before long he found himself working as an engineer in one of the principal royal blood lines of Vetenskaps, the British radar development group. If they had been more sensitive, those primitive radar screens might have shown more Vetenskapsers in the area than German bombers. That's how Sir Martin got to Cambridge, perhaps the intellectual center of Britain's efforts to win World War II. Cambridge also is the home of two other grand Vetenskaps blood lines, the laboratories of Nobel laureates Ernest Rutherford and William Henry (as well as his son William Lawrence) Bragg. Perhaps only Max Planck himself, awarded the 1918 prize for the quantum theory of light, taught more young scientists who later Vetenskapsed. In such surroundings Sir Martin was at least five moves ahead—at the very beginning—of the closest competition.

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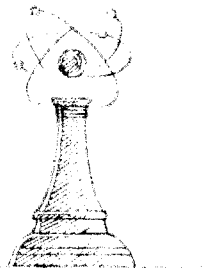


Rule 3. Don't work in kinky fields or in technology. Remember the classics. After the war, Sir Martin made what could have been a fatal move. He decided to go into astronomy. He recovered somewhat, however, by remaining at Cambridge, keeping tight-lipped, and concentrating on the physics side of astronomy (in his case the radio wave emissions of cosmic objects).

Physics. Queen of sciences. The calling whose practitioners attempt to explain the form and function of everything in the universe, from the smallest recesses of the atom to the largest and most powerful objects in the universe, with RIGOR. (This beloved Vetenskaps adjective refers to mathematical reasoning that is tight and strong enough to show a clear relationship between anything and everything and to be able to survive the intellectual assaults and insults of other rigorous people and of time.) Physics—the first prize mentioned in Alfred Nobel's will.

Nobel mentioned two other scientific fields as being prizeworthy. Chemistry was there—after all, it was Nobel's own field. Vetenskaps purists feel that chemistry is less significant in the cosmic order than physics—less rigorous—but at least it can be the basis for making a lot of money in synthetics, pharmaceuticals, and raw-material processing. The last prize area mentioned was physiology or medicine. Bunch of witch doctors, a true Vetenskaper believes. But what the hell, we've got to stay alive, and physiology/medicine is still more reliable than voodoo. Possibly these types will get more physical if encouraged to play Vetenskaps. (Note: This has happened. The vast majority of physiology/medicine prize winners of the past fifteen years have been in the field of molecular biology, a much more mathematical and *physical* way of explaining genetic and physiological functions than earlier medical experimental techniques. Few physicians or surgeons have won since the 1950s.)

Nobel mentioned no other fields. The fact that he gave prize-awarding powers to totally academic institutions—the Royal Swedish Academy of Sciences for physics and chemistry, and Stockholm's Karolinska Institute for physiology/medicine—meant that university standards of basic research would prevail. There was no room for the science of industry, or for technology in general.

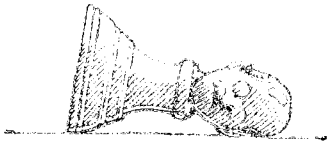
And there was no room for many important pure sciences as well, because of Nobel's oversight. Consequently, the prizes reward a much smaller segment of science than the public believes. For example, there is no provision for astronomy (not rigorous enough) and accordingly, no prizes for Hubble's discovery that the universe is expanding, for quasars, for other findings that are making astronomy the most exciting science of the day. Ryle and/or Hewish—very *physical*—will be the first. There have been no Vetenskapsers in space research for moon-rock studies, for the discovery of the Van Allen Belt, for Martian mapping, or for rocketry, meaning that the names of Tsiolkovsky, Goddard, and Von Braun are missing from Vetenskaps lists.

Nor was there provision for the highest of intellectual callings, "pure" mathematics. (One Parisian scientist offers the totally unverified explanation that Nobel was rebuffed in love by a lady mathematician and so excised the entire subject from his will.) The Vetenskaps archives also show no trace of computer developments, geophysics, the exciting discoveries on continental drift, psychology or psychiatry, anthropology or archeology, and almost nothing on surgery, meteorology, and the theory of frontal systems that makes weather prediction possible.

Several of these omissions derive from the Vetenskaps rule that no more than three scientists may share a single prize. These would exclude specialists in computers and space—all required the contributions of thousands—as well as the major part of Sir Martin Ryle's Cambridge radio astronomy group.

The peculiarities of Vetenskaps guidelines account for the lack of the following names from the rolls of winners: Thomas Edison, Alexander Graham Bell, Sigmund Freud, William James, Luther Burbank, Wilbur and Orville Wright, John Von Neumann, developer of game theory and a high-speed computer pioneer, Louis Leakey, the archeologist with evidence on the form of "missing link" prehuman man, Jacob Bjerknes, developer of the frontal theory of weather—as well as the explorers Amundsen (the Antarctic), Piccard (the lowest depths of the oceans), Armstrong (the surface of the moon), and Gagarin (earth orbit).

Vetenskaps, then, is a game that even great men can lose.



But Ryle will not lose because he took the rigorous approach. At war's end he remained at Cambridge to see what scientific purposes radar and radio-detection instruments might be put to. The first phase was primarily engineering and some exploratory studies of the radio personalities of the ionosphere, the sun, a few stars and galaxies. Things were measured and catalogued, step by step, with no great flights of fancy.

By the early 1950s the first clue came to radio astronomy's unique potential. An extremely strong radio source was spotted in the constellation Cygnus. The source was 500 million light years away. Since distance is also time in astronomy, Ryle had been listening into something that happened half-a-billion years ago. This was a substantial fraction of the then current estimates of the total age of the universe itself. Radio astronomy, then, was a unique *cosmological* tool, Ryle concluded. Yes, let Bernard Lovell and his steerable radio telescope play with satellites, the solar system, and a few nearby stars. The Ryle boys were going the whole route. But something even more important (in Vetenskaps) occurred then. Ryle was elected to the Royal Society.

According to former students, Ryle is the type of mechanically oriented man who must build a new telescope every few years. In the mid-1960s came his "one mile telescope," actually two radio dishes on rails, able to be moved apart up to a distance of a mile. This, plus the Ryle-developed techniques of "aperture synthesis"—essentially a means of increasing the telescope's power and sensitivity by computer simulation—made the one-mile the world's best cosmological instrument.

"Count the radio sources," Ryle ordered a graduate student named G. G. Pooley. Pooley did and, oh, what he found.

The source count revealed that the observable universe is organized in three rough zones. At an estimated five billion light years out, the radio galaxies and quasars (the other major source of strong radio waves) are clustered closely together in a wide band—much more densely than those "closer" to earth. But farther out, as the count and a statistical analysis showed, they begin to drop off in number per unit of universal area, and are spaced much farther apart. This continues for more billions of light years until there is—almost nothing.

Ryle, using Pooley's count, can now say that the universe was apparently much hotter and denser than it is now or, at least, has changed its character over time. Moreover, he can say that it is not infinite, as one school of cosmology believes, but sharply finite.

In quick order, plain Martin Ryle

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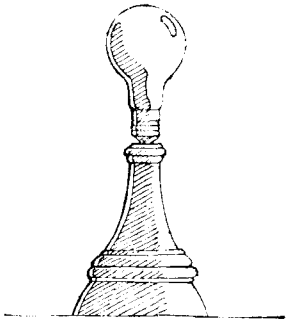
became *Sir* Martin, and a decision was made to build a new telescope—with dishes up to three miles apart. It will begin operation this fall, but it will be a different type of operation. Its greater precision will permit Ryle to study the *physics* of radio galaxies, hopefully to answer the question about how these objects generate such enormous amounts of energy. However, this instrument is not particularly long-ranged.. Why increase the range when there is nothing more to see?

My God, thinks the layman, this man has seen the edge of the universe. Overpowering! Enough to put one in a hospital for a month in bogglement over the wonder of it all. But Vetenskapsers don't react that way. "We just can't spend all our time jumping up and down," remarked Hewish. "No, Martin's reaction to such things is that they are interesting physics—let's get a paper out on it."



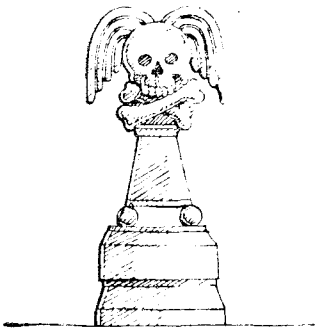
Rule 4. Don't be too theoretical or too far ahead of your time.

While Fred Hoyle, Hermann Bondi, Thomas Gold, and others were spinning all kinds of universes out of their brilliant theoretical minds, Ryle was building telescopes, ordering counts of radio sources, giving cautious astronomy talks over the BBC—that's all right, not publicity seeking, only a national duty to educate—and winning scientific arguments with his charts and figures. RIGOROUSLY. He hadn't said that Steady State is dead, long live Big Bang. He kept it conservative.

Excellent Vetenskapsing. The Swedes are an intellectually sober race. Einstein, after all, did not win at Vetenskaps for suggesting that matter and energy are interchangeable, or that time is somehow related to the speed of light, or that gravity gives a curvature to the universe. No, indeed. He was crowned for a good steady piece of physics involving something called the photoelectric effect. And Pavlov? The Nobel public records, such as they are, mention nothing about the theories of conditioned reflexes that have shaped generations of political and psychological thought. Pavlov's reward came for "work on the physiology of digestion."

Rule 5. Work hard—like a Swede—but, for God's sake, don't die.

Sweden has only eight million people



and is located in one of the remoter corners of the world. Through scientific intelligence gathered through the Nobel network, through cautious and pragmatic planning—but most of all, through back-breaking work by literally every Swede alive—this nation has developed a living standard second only to that of the United States and in some quality-of-life respects, even higher. Work is appreciated.

And Sir Martin *is* work. Around the clock. His few nonastronomical (sorry—non*physical*) pleasures include his family of wife and three children, the periodic architectural restructuring of his home in Cambridge, and sailing (which appears to be a favorite sport of those new Vikings in Stockholm, the arbiters of Vetenskaps).

Not long ago his doctor told him to stop and rest, which he did. There was no rocketing around the computer installations at his radio observatory in Cambridge, no teaching, no contact with the Swedes on who ought to be considered for the prize. This hiatus lasted more than a month. It was another wise move. He is rested and happily fit today, of course, but that is not the whole point.

Nobel Prizes are not awarded posthumously (although a very few exceptions have been made). Furthermore, the Swedes take their time about awarding the prize. A candidate is usually up for about ten years before the Swedes decide his research has stood the test of time and thereupon bestow the Vetenskaps laurel. Some candidates simply don't make it. That is why, for example, the great genius of chemistry, Mendeleev—who banished chaos from chemistry with his periodic table of chemical elements—never won at Vetenskaps. He died. (Einstein also died before various recent experiments confirmed aspects of relativity, making him ineligible for a second prize.)

Rule 6. Get the most science for the least money, and be sure to question American extravagance.

Physicist Charles Townes, formerly of New Harvington and now in Los Berkliego, was considered a sure thing for the prize for years because of his research contributing to the development of the laser and maser. But the award was delayed because of reports that two obscure Russians—working with primitive equipment—had made discoveries of similar importance. When the intrepid Swedish investigators finally tracked down Messrs. Basov and Prochoroff in Moscow, they found that this was indeed true. Townes got the prize after several years, finally, but shared it with the two Soviets.

The chairman of the physics prize committee in Stockholm, Professor Erik Rudberg, states that great findings with primitive instruments should be rewarded equally as well as great findings by "button pushing on expensive instruments." Whoever is he talking about? The overfinanced team researchers across the Atlantic, that's who.

Now, to Ryle.

A former student notes how tight Ryle is with the English new pence in running his radio astronomical observatory. His budgets submitted to the British government are modest, and they are always approved. "He likes to say that he can run all his telescopes and crew with the same amount of money that the Americans spend on nuts and bolts to repair their badly designed instruments," the student recalled.

Similar remarks are heard throughout European laboratories. Research in America is more finance and welfare than science. Little mention is made of the horrendous budget cuts that recently have chopped an arm and a leg off the average American scientist.

Rule 7. If you can't take a Swede to lunch, at least read Gunnar Myrdal.

This is perhaps the touchiest point that comes up in an analysis of winning Vetenskaps. When a potential Vetenskapser or an actual Vetenskapser speaks in public on political issues, are there right and wrong things to say? Perhaps only a William Buckley might point out that no South African scientists have won at Vetenskaps in eons, nor have those who want to "Save Vietnam from Communism" or who suggest that there are differences in intellectual capacity between the races. (An exception in the last category is Stanford's William Shockley, who shared the 1956 Nobel Prize for development of the transistor. To the mortification of both the American Academy of Sciences and Stockholm, he has suggested large-scale studies to see if blacks are intellectually inferior to whites.) Racism and war are things that anyone can oppose without wearing a political label, but at least one Swede *does* attach labels to these views.

He is Gunnar Myrdal—father of the "Swedish Welfare State," prolific author on world questions of political economy, the husband of Sweden's

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NOBEL SCIENCE PRIZE FINALISTS

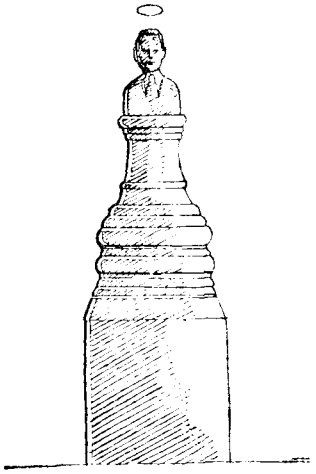
On occasion the Nobel Prize has been denied (or at least delayed in its award) to scientists who appeared to be lobbying for it through the detested activity of "publicity seeking." Through interviews with those who select candidates for the prize—and by employing the time-tested Nobel technique of not actually asking—the author obtained not only the names of Sir Martin Ryle and Anthony Hewish but also the names of the nominees listed below. These men, all knowledgeable in the rules of pre-Nobel deportment, did not reveal this information themselves. (And, undoubtedly, additional names will appear on the official list.) It is requested, consequently, that Stockholm be lenient and not hold them responsible for the fact that their names appear in public print as solid Nobel Prize prospects.

Carl Djerassi, Stanford University, *Chemistry.*
R. Bruce Merrifield, Rockefeller University, *Physiology/Medicine* or *Chemistry.*
George J. Popjak, University of California, Los Angeles, *Chemistry* or *Medicine.*
J. W. Cornforth, Milstead Laboratory of Chemical Enzymology, *Chemistry* or *Medicine.*
A. R. Battersby, Cambridge University, *Chemistry* or *Medicine.*
J. Oudin, Pasteur Institute, Paris, *Medicine.*
Karl Folkers, University of Texas, *Chemistry* or *Medicine.*
Holgar Erdtman, Uppsala University in Sweden, *Chemistry.*
George Klein, Stockholm's Karolinska Institute, *Medicine.*
Sune Bergstrom, Karolinska Institute, *Medicine.*
Brian Josephson, Cambridge University, *Physics.*
George Palade, Rockefeller Institute for Medical Research, *Medicine.*
Keith Porter, University of Colorado, *Medicine.*
Albert Claude, Jules Bordet Institute, Brussels, *Medicine.*
Sol Speigelman, Columbia University, *Medicine.*
David Baltimore, MIT, *Medicine.*
Rayla Temin, University of Wisconsin, *Medicine.*
Robert J. Huebner, National Cancer Institute, *Medicine.*
Henry Gerden, Britain's Medical Research Council, *Medicine.*
Chien-shiung Wu, Columbia University, *Physics.*
Leon Lederman, Columbia University, *Physics.*

minister of disarmament, a thirty-year-member of the Royal Swedish Academy of Sciences and himself a candidate for the economics prize, and the father of one of Sweden's most visible Maoists, Jan Mydral ("who is *too* goddamned Maoist if anyone wants my opinion," remarked Myrdal senior). If you ask—very carefully—if he sees a predictable set of political issues that laureates will support or oppose in public, you should get an answer like the one he gave me last January:

"Laureates are intelligent and decent people, and most intelligent and decent people make left-liberal statements. That is fine. Such people and statements are good for the development of the world."

Now to Sir Martin, who makes few statements at all. A recurrent remark is that he went into scientific radio astronomy because he no longer wanted to make radars "for the next war." All right. Fragmentary, but it still won't hurt him at Vetenskaps.



Rule 8. Be a modest man and an immodest publisher of scientific papers. The average Swede who decides who will win at Vetenskaps is extremely modest, gentle in nature, has a non-noisy sense of humor, is quick to orally credit others for something he has done, and usually wears a bow tie. Sir Martin lacks only the bow tie. He will discuss an important development in his laboratory, read off a long list of persons who made a valuable contribution to it, and then say something like this: "I don't remember if that was my idea or not."

This raises the consolation-prize area of Vetenskaps. Most discoveries today are made by large groups, but Nobel rules limit the prize only to three people. If and when Ryle does get the prize, it is doubtful whether the young graduate student Pooley—who compiled the data that described the shape and boundaries of the universe—will be mentioned at all.

The Swedes themselves will acknowledge the injustice of such limitations, but, nevertheless, make no move to change the rules. Instead, they have evolved another approach to consolation prizes. A worthy scientist who is otherwise disqualified by the narrow Nobel rules might instead be elected as a foreign member of the Royal Academy of Sciences (such as Konrad Lorenz, whose studies on aggression don't fall into existing prize categories), or at least will be mentioned in the text of the official house book of the Nobel Foundation, *Nobel: The Man and His Prizes* (Elsevier, 1962).

Modesty, at least in terms of numbers, is definitely *not* encouraged in the publishing of research papers, however. Nobel judges claim they base their decisions on the quality of a candidate's published scientific work—"but the 200 and 300 paper man is definitely not an exception," said Nobel judge Arne Magnelli.

This is precisely the time of the year when winners are selected in Stockholm among the "players" such as Ryle. What has gone before is this: About a year ago the Nobel judges sent out roughly 800 invitations to nominate candidates for the three prizes. Nominations closed at the end of January, and the rough subjective pruning by judges reduced the list to ten or twenty finalists a few months later. For most of the spring and summer, these ten–twenty have been subjected to intense investigation to determine both the quality of their work and whether the "player" did it first.

At this moment Professor Erik Rudberg, permanent secretary of the Royal Academy of Sciences and chairman of the physics prize committee, is writing a final recommendation for a winner. This will probably be presented to the academy in October, and, if the academy follows its past practice, it will vote overwhelmingly in favor of the committee recommendation to elect a new laureate.

A day or so before the vote, Rudberg will have given the local press a sealed envelope, containing three more sealed envelopes bearing a code name (usually a Swedish male name such as Bertil or Olof). After the academy ratifies the winner, Rudberg then contacts the press to tell them that the winner's name is contained within Olof or Bertil. (A dummy candidate is sometimes enclosed to discourage premature disclosure by the press.)

This process, in 1972, will be the *other* great fall election in the Western world. While the winner of one will only be entitled to direct the foreign and domestic policies of the United States of America, the winner of the *other* will enjoy the even tastier fruits of universal honor and influence, the rewards of winning the grinding game of Vetenskaps. □

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OUR TWO-STORY CULTURE

BY PAUL BOHANNAN

Only a few years ago it was stylish to say that we could not prepare our children and our students to live in the world because we did not know what their world would be like. Today that world is becoming clear. They will live with—they already live with—a two-story culture. There is a large-scale world, with its common culture. It is primarily economic and political, mediated by dollars and votes, by consumer products and televised national political conventions. There is, at the same time, a small-scale world of family and community, mediated by sympathy and trust in face-to-face relationships. To different degrees, we all live in both.

Both the large-scale and the small-scale world have become complicated; the first by sheer size, the second by sheer variety. All of us must learn to deal with the large-scale culture. We may not seek to participate actively in it, but we cannot ignore it. We must also deal with the fact that most people today—at least those of us who live in an industrialized society—belong to many small intimate groups, and that these are no longer space-bound territorial groups.

We might call ourselves, with our two-story culture, post-peasants. For a long time social scientists have recognized that the essence of the peasant society is that it is divided into two parts; that is, the peasant culture is not capable of survival without joining with other part-cultures to make up a larger entity. Peasants, although they are self-sufficient in many ways, depend on traders to bring them products (salt, perhaps) that they cannot produce themselves, and on political authorities (earls, perhaps) to protect them.

The large-scale culture—the upstairs culture—revolves around power. There are only a few distinct cultures in the large-scale world: the varieties of democracy, the varieties of communism, and the various socialisms. All the cultures of the large-scale world are interconnected. They are part-cultures in one big world-culture.

The small-scale cultures—downstairs, if you will—are based on intimacy. They are many and varied, and they are *not* interconnected. Or, rather, they are interconnected by individuals who participate in several of them, rather than by institutions in which each individual is a recognizable entity. Some are still tribal; others still peasant. Some are based on religion, some on propinquity. But even more are based on the choice or subscription of individuals and are in that sense "voluntary." The basis for the choice may be rock music, pot, or Masonic ritual. Some small-scale cultures are limited by race or (that most mystical of all concepts) ethnicity.

Small-scale cultures are not usually in touch with one another. Between them are invisible boundaries (or unspoken or disputed boundaries) rather than the overt and known boundaries established between nations or corporations. Indeed, the only reason that the people of small-scale groups should get to know one another is to reduce fear. But they can go on without one another. They are connected only within the experience of individuals—in the bits of culture that each of us packs within himself.

Obviously, we need both large- and small-scale groups. Consumption aside, the economic and political tasks cannot be done by small-scale groups; welfare aside, providing care and intimacy cannot be done by large-scale groups. The problem is to successfully negotiate the stairs between the two stories.

The two levels of culture with which each of us lives must not get too far out of phase; that is, the stairs between levels must not be allowed to collapse or to be overused. The small-scale cultures, for example, are sometimes dragged into the world-wide framework of large-scale culture. The church in the late fifteenth century had concerned itself with power and hence became a political institution. Nationalism—the practice of building a state on the basis of a nation (a word derived from the Latin word meaning "to be born")—led to a new kind of colonialism and to the widespread problems of minorities because, via the complex idea of "nation," the state could invade ethnic cultures. When power derived from a large-scale culture seeks to destroy or isolate microcultures by controlling entree into the large-scale culture, strife inevitably results.

One of the most common strategies for squeezing people out of the large-scale culture is powerful condemnation of their small-scale cultures. On the other hand, some small-scale cultures are isolated (sometimes voluntarily) in such a way that their members are systematically held back from learning the principles of the large-scale culture.

The most characteristic aspect of what is called the Establishment is that the people in it have no difficulties with the stairs. They can go easily from macroculture to microculture. Their microcultures contain people who run or move easily in the institutions of the large-scale culture. They have a built-in third level that gives easy access to both the others. They often despise people who lack the ability to pass between the two and thus shut themselves off from most microcultures.

We all know that today there are many young people (usually referred to as "middle-class" because of the socioeconomic position of their parents) who can, when they choose, manipulate the large-scale culture very well (but who may consider it immoral to do so) and who feel empty—"alienated"—because they have been "robbed" of the intimacy of a small-scale culture. The countercultures are attempts to create viable and rewarding microcultures, because living only within the large-scale culture is not enough. However, living within the small-scale culture alone is not enough either, as most people in most experimental communities come to realize.

The size of the world population and the excellence of our communications means that we are necessarily living in a world that is truly fraught with danger, danger to our power structures on the one hand, danger to our tribalism on the other. All of us are both running scared and longing for community. So we join the John Birch Society or "the counterculture"—it is the same thing. Yet we are also living in a world potentially fraught with delight. Never have so many people had so wide a choice of cultures open to them.

The goal for America must be to make its two-story culture overt. We must recognize it and learn how to use it toward humane ends. The large-scale culture of America—the culture that accompanies and vivifies our economic and political institutions—must be based on our historically validated doctrines of equality, doctrines that we are still struggling to define. In this context equality means one man, one vote and equal economic opportunity.

At the same time we must cherish a whole spectrum of microcultures. We all know that the melting pot didn't, in fact, melt anything. It was a myth for dealing with the overwhelming migration of "foreigners." The early immigrants to the New World were not foreigners to anyone except the red Americans. But late in the eighteenth century, when America was becoming an independent state, it also sought to become a nation—a cultural unity based on a common history.

America was probably the first to achieve nation-statehood backward. Whereas Portugal, Britain, France, Spain, and Holland were all nations that founded states, America first made herself a state, and then had to struggle to make herself a nation. Except for

Paul Bohannan is professor of anthropology at Northwestern University.

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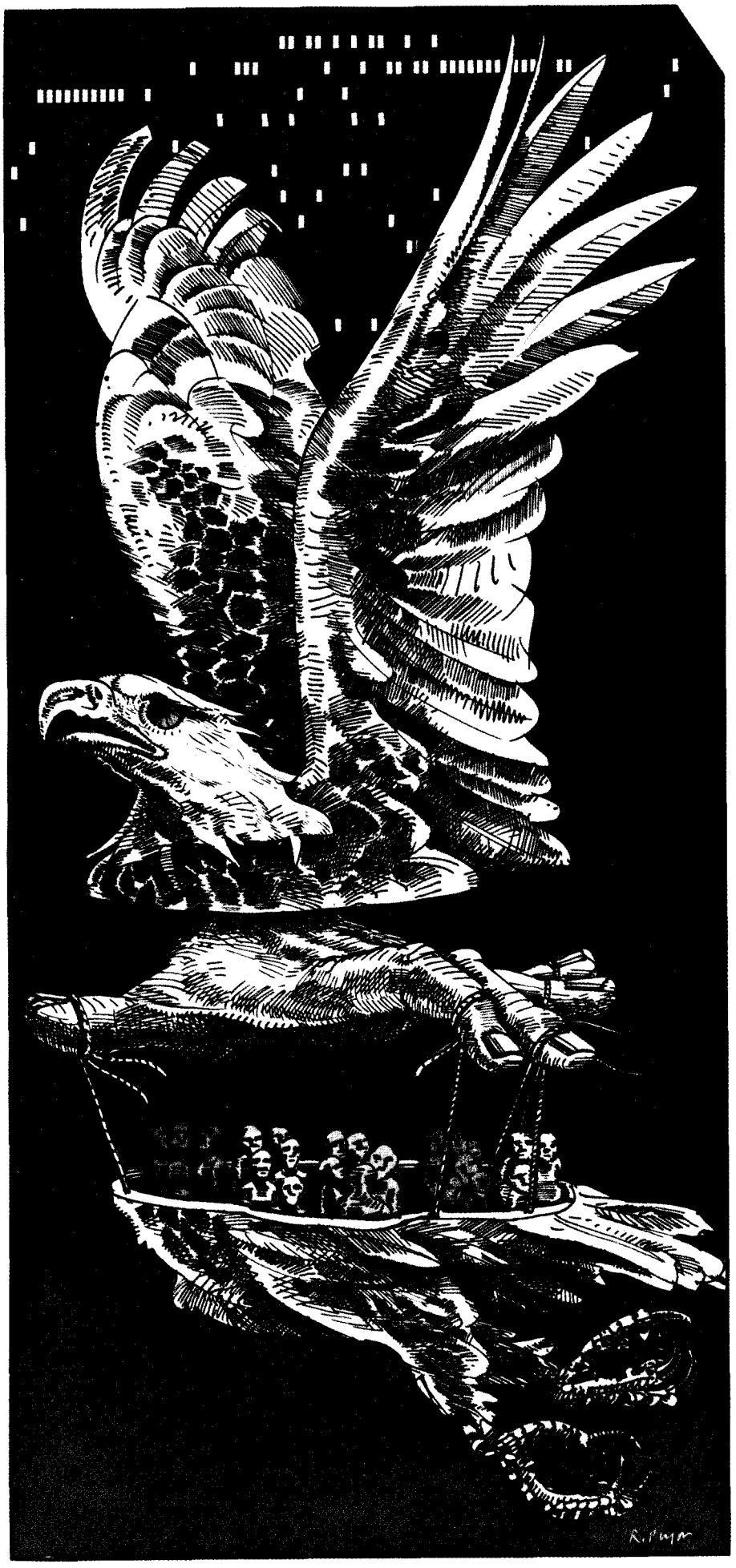
ROBERT PRYOR



the blacks, immigrants before 1776 did indeed merge more or less into "old stock Americans." The first European "foreigners" were the Irish fleeing the famine—the earlier Irish began to call themselves "Scotch-Irish" to keep their "nationality" (a strange new American concept) at the same time they kept their nonforeignness in America.

Equality in small-scale cultures means something very different from what it means in the large-scale culture. Fundamentally, it means a respect for "differentness," without envy and without fear. In these microcultures we can "be ourselves," relax and enjoy with "our own," struggle with the eternal problems of birth, sex, and death, eat and dance, love and hate, all to the limit of the human capacity for these things.

And what does this mean for people? It means that we have a lot of people who are competent in the large-scale culture and, at the same time, in one or more microcultures. It is happening: One need only look at the variety of people in the televised portion of the Democratic National Convention. There were a lot of two-story people there, their microcultures showing, working together in the large-scale culture with determination and skill.

But what about a new vision to replace the melting pot? The black revolution has brought black small-scale cultures (the "s" is important) to the attention of everyone, as blacks work to regain rights in the large-scale culture that they almost grasped just after the Emancipation Proclamation. And blacks are not the only groups in the public eye. Today we hear of red power, brown power, Greek power, Italian power, Irish power, Polish power, Jewish power, and, feebly but nevertheless audibly, WASP power.

But most microcultures are not, strictly speaking, ethnic. They center upon the hordes of voluntary associations that industrialized people create. This is especially true of Americans, probably as a function of mobility.

There are two great difficulties in the world: communication between the two stories and fear among microcultures. But surely the goals are obvious: civil rights laws based on equality and justice, and sufficient intercultural education so that the differences among microcultures need no longer frighten us. Confusion between the large-scale culture and the microcultures often leads one small group to believe that by putting another group down they thereby control the large-scale culture. They do not reckon that, even if they succeed momentarily, the forces within the total system will destroy them. It is the same kind of futility as the War of the Roses. There can be no victory worth the price. □

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THE THOROUGHLY MODERN MIDWIFE

BY PATRICK YOUNG

Michael Gold

YESTERDAY'S "GRANNY" MIDWIFE HAS GIVEN BIRTH TO A NEW MEMBER OF THE MEDICAL TEAM.

The midwife is almost as old as human birth and more fixed in stereotype than the Western bad man. Her name summons up an image of a wizened woman, well-intentioned but illiterate, bustling around some dingy hovel, attending as best she can to the bringing of another infant into poverty.

When Carol Brill, a young registered nurse, learned that her second child might be delivered by a nurse-midwife at Philadelphia's Booth Maternity Center, she envisioned such a scene and was understandably wary. The Brills were considering natural childbirth and were attracted to Booth by its innovative maternity programs. But a nurse-midwife was quite another story. "I had always pictured midwives as elderly women with black bags who rode horses and delivered babies in poor areas," Carol recalls.

That was before the Brills met today's thoroughly modern midwife, a registered nurse with one or two years' advanced obstetrical training. She was as different from the old "granny" midwife as a psychologist is from a phrenologist. "We felt they were as capable as doctors in handling a normal pregnancy," says David Brill. Last December his son, Todd, was ushered into the world by a nurse-midwife.

In the future more and more Americans, like Todd Brill, will begin life without the direct intermediacy of a doctor. After four decades of unrecognized dedication, the nurse-midwife is stepping into a major supporting role in medicine, filling the void created by a decline in the number of physicians delivering babies.

"We find we are attracting fewer medical students into obstetrics at a time of increased demand for obstetri-

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Patrick Young is a science writer for the *National Observer*.

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cal care," says Dr. Sprague H. Gardiner, professor of obstetrics and gynecology at Indiana University School of Medicine and president of the twenty-year-old American College of Obstetricians and Gynecologists (ACOG). "We are finding that, as each year goes by, fewer and fewer general practitioners are doing obstetrics and taking care of newborn babies."

In October 1970 obstetricians welcomed nurse-midwives to the medical team, seeking to wipe out the "deficits in the availability and quality of maternal care." In a joint statement, ACOG, the ACOG Nurses Association, and the 600-member American College of Nurse-Midwives stipulated that qualified nurse-midwives, when working with a physician, "may assume responsibility for the complete care of uncomplicated maternity patients."

"Years ago we took delivery away from the midwife to make it a sound, scientific specialty," Dr. Gardiner explains. "Now the nurse-midwife is part of the team. I think the quality of care for obstetric patients will be augmented rather than diminished."

Nurse-midwifery is not a recent innovation in American medicine, some desperate attempt to rush vitally needed womanpower into the delivery room. Kentucky's Frontier Nursing Service, which provides care for the sick and infirm in remote Appalachian communities, began utilizing nurses as midwives in the 1920s. The pioneering Maternity Center Association in New York City opened the nation's first school for nurse-midwives in 1931.

But physicians long remained skeptical of the nurse-midwives' skills and fearful that these women would begin their own practices. This concern about competition still lingers among a few doctors, but nurse-midwives insist it is unfounded. For one thing, nurse-midwives have traditionally worked with the poor, where money is scarce, doctors few, and risk in pregnancy high. "We began where the need was," says Lucille Woodville, president of the International Confederation of Midwives. In fact, the efforts of nurse-midwives have produced spectacular reductions in the infant-mortality rate in several poorer parts of the country. For example, in Holmes County, Mississippi, the rate declined from 39 deaths per 1,000 live births in 1969 to 17 per 1,000 in 1970 after five nurse-midwives spent the year working among poor mothers.

Nurse-midwives no longer restrict their work to poor communities, but even their increased participation in affluent areas poses no real threat to practicing MDs. Indeed, with fewer licensed practitioners entering obstetrics, the nurse-midwife provides welcome assistance to the harried physicians remaining in the field. The American College of Nurse-Midwives reports that the demand for nurse-midwives from private physicians and hospitals far outstrips the current supply.

Today there are more than 1,200 nurse-midwives certified in the United States and its territories. More than half of these women are employed in some capacity related to their nurse's training, and more than one-third are actually providing direct service as midwives, taking care of normal mothers and babies regardless of economic status. Wherever they work, they win a warm reception from poor and affluent mothers alike. For example, in Springfield, Ohio, a city of 82,000, nurse-midwives working under the guidance of four local physicians delivered one-third of the 2,400 babies born in 1971 at Community Hospital. According to the hospital's administrator, Neil Kresheck, about 65 per cent of those who used the midwifery program were middle-class women.

Because nurse-midwives work only with normal pregnancies, women with such potentially dangerous conditions as diabetes, high blood pressure, and heart trouble—as well as those expecting twins or breech births—are still served by physicians. This, Dr. Gardiner notes, allows physicians "more time to spend with the abnormal patient who needs extra care." Moreover, for the woman whose pregnancy poses no threat to her health, this division of labor may be quite beneficial. "Ordinarily, there is a lot of emphasis on people with complications, and oftentimes the normal woman gets neglected in the process," explains Joyce Cameron, director of the University of Utah's nurse-midwifery program.

"When your time comes to have a baby," says Carol Brill, "you have a lot of questions. The doctor who performed my first delivery did everything by routine. I had to write questions down, and I always left with the feeling I didn't quite get them answered."

Carol found her woman-to-woman relationship with the nurse-midwives at Booth Maternity Center a welcome change from her previous pregnancy; the women of Booth had more time for her.

"The nurse-midwife actually sat me down in a chair and talked with me and asked if I had any problems or anything bothering me. Then we would listen for the fetal heart and do the pelvic examination. I never felt rushed. Before I had felt guilty about taking the doctor's time.

"With the nurse-midwife, the embarrassment and tenseness were gone. I could get my questions out. I didn't have the initial fear and anxiety I had with doctors. The whole atmosphere was: 'Anything you want to ask us, just call. We're available.' Doctors tend to be rushed. I got quality care with the first doctor, but not personal, individual care."

The nurse-midwife begins attending a normal patient after the physician's initial examination. She provides the same services as does the doctor, giving prenatal advice and answering medical questions. She often performs the delivery and then helps the family to adjust to its new member. If any problems arise during the pregnancy or the delivery, the patient immediately goes back under the care of a physician. For this reason, the modern nurse-midwife does her delivering in the hospital rather than the home.

When Todd Brill was born, his father was in the delivery room. Carol's physician was there, too, chatting at her side, watching the nurse-midwife perform her duties, but taking no part in the delivery. Todd's birth went smoothly as the nurse-midwife explained each step to the couple. "Nowhere along the line did I get the feeling she didn't know what she was doing," Carol says.

Nurse-midwives may perform most of the functions of their specialty in all fifty states and territories, but some specific areas bar them from actually delivering babies even in normal circumstances. These states—such as California, Massachusetts, and Vermont—regard delivery as the practice of medicine and restrict it to physicians. Nevertheless, the demand for nurse-midwives continues to grow despite such legal restrictions. In fact, efforts to enact legislation permitting nurse-midwives to deliver are now under way in a number of states. Ruth Lubic, executive director of the Maternity Center Association, expects the nine nurse-midwifery programs in the United States to double within the next few years. Last year, for example, the association received four applications for each opening in its training program at Kings County Hospital in Brooklyn. "And the applicants were all well qualified for entry," Mrs. Lubic says. Five refresher courses are also offered around the country for nurse-midwives who have left practice or for those who were trained abroad and wish to practice in the United States.

The nurse-midwife will not replace the obstetrician, but her helping hands will become more evident to American mothers, fathers, and physicians. Like most couples who have gone through a pregnancy with the aid of a nurse-midwife, the Brills are enthusiastic about this change. They would both be happy to have a nurse-midwife deliver another child for them. "No second thoughts about it," says David. "It was kind of a natural thing, having a woman there." □

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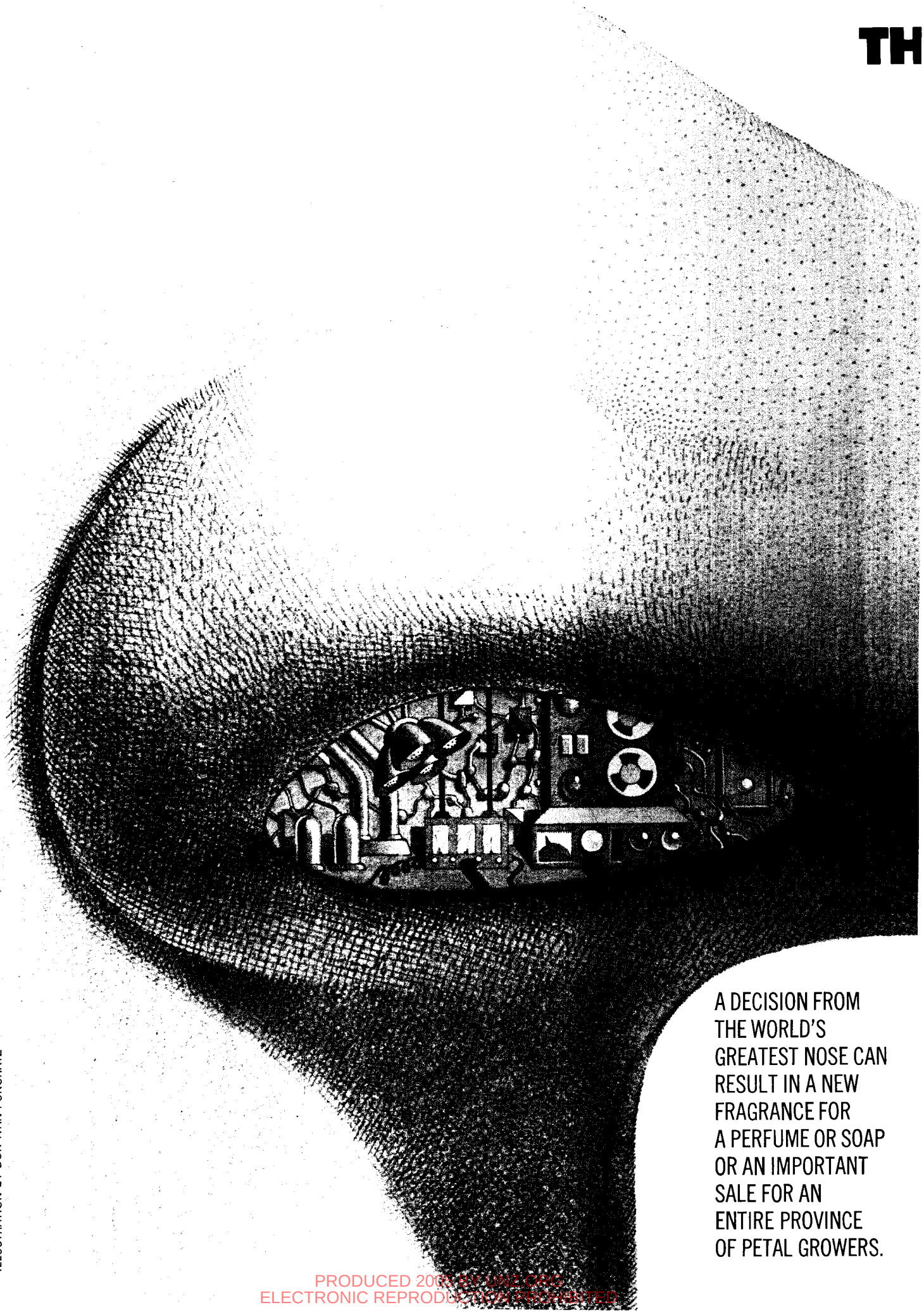

A DECISION FROM
THE WORLD'S
GREATEST NOSE CAN
RESULT IN A NEW
FRAGRANCE FOR
A PERFUME OR SOAP
OR AN IMPORTANT
SALE FOR AN
ENTIRE PROVINCE
OF PETAL GROWERS.

ILLUSTRATION BY DON IVAN PUNCHATZ

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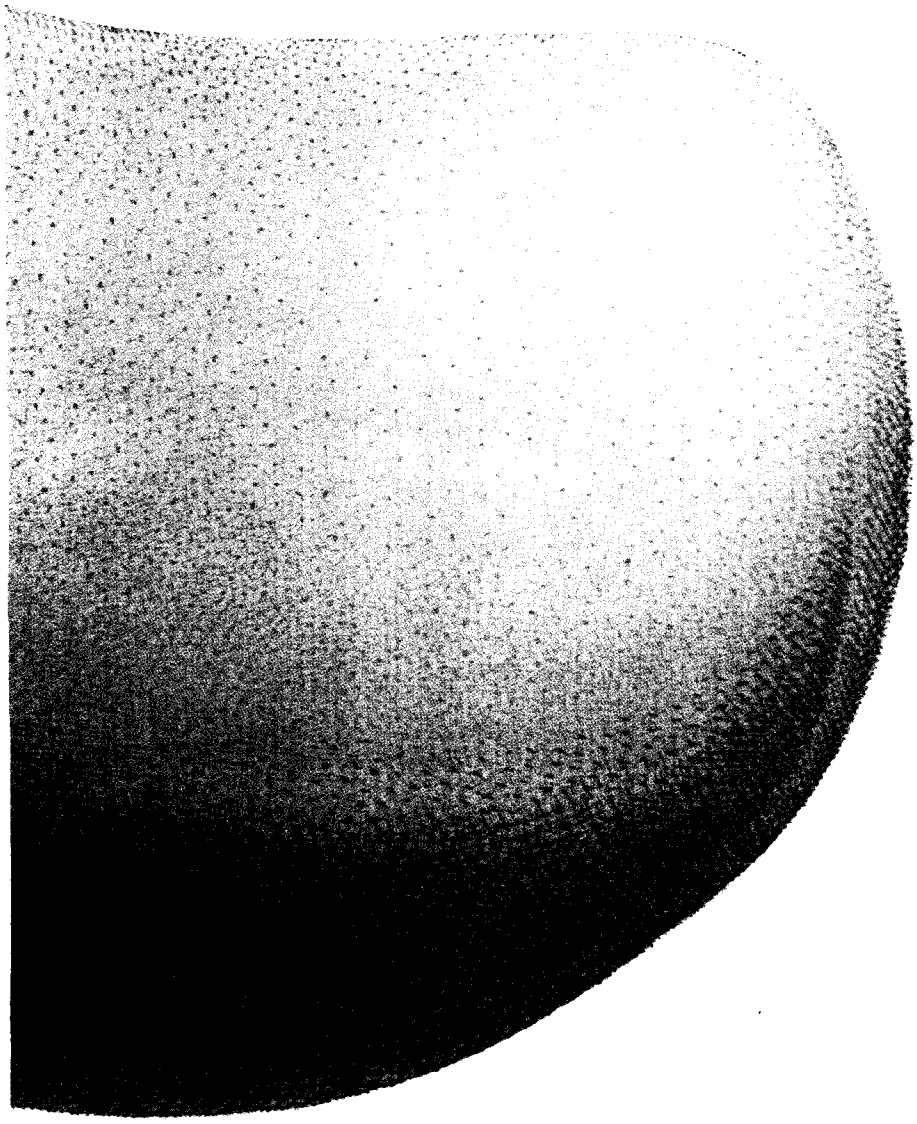
VORLD'S GREATEST NOSE: A PROFILE

BY ROGER FIELD



The sulfurous stench of an igniting match is never permitted to foul the air of his blue-carpeted office. Visitors, upon entering, are politely requested to drop their cigarettes into a special false-bottomed ash tray, so designed that unpleasant odors stay down in a hidden well. "The nose" himself smokes only three or four cigarettes a day, without inhaling, mostly after meals. These he never lights with anything but a butane lighter; he can't stand the smell of even an ordinary benzine lighter. His lighting a cigarette for someone is not mere politesse; it's self-preservation.

The man with this incredibly sensitive olfactory apparatus is Ernest Shiftan, the master perfumer, reputed to have the finest sense of smell in the world. His colleagues who create beautiful perfumes are called "noses," but Shiftan, with thousands of formulations and thirty masterpieces to his credit, is known simply as "the nose."

Physically, the Shiftan nose is interesting: Its long ski-slope scoop is supported by a flaired base and looks much like Richard Nixon's, Bob Hope's, and Tammy Grimes's. The working end is quite rubbery, noticeably so when he flicks it with his right thumb in an occasional, nervous gesture. Shiftan's almost complete lack of eyebrows makes his long nose a central and compelling feature that utterly dominates his face. It also dominates his life.

Shiftan is senior perfumer and vice president of a company called International Flavors and Fragrances—one of the world's leading suppliers of fragrance oils for perfumes. He works in a building a block or so from the Hud-

Roger Field is the science specialist at WINS radio in New York. His articles have appeared in the *New York Times*, *Esquire*, and *Innovation*.

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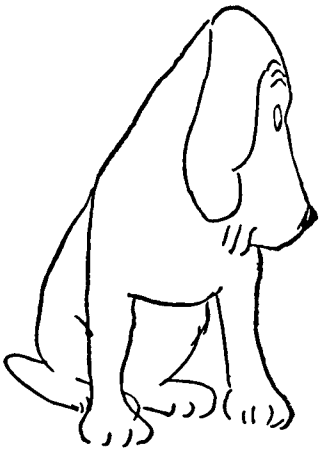

MAN'S BEST FRIEND'S NOSE

The olfactory sense of dogs has enjoyed wide acclaim, especially when it is used to track humans. Dogs probably trail humans by following the scent of human sweat that seeps through the shoes and onto soil and vegetation. Research indicates that dogs are extremely sensitive to some components of human sweat, including the aliphatic acids. A person wearing rubber galoshes or new shoes through which sweat has not had time to seep apparently leaves no trail. The odors of disturbed earth and bruised vegetation probably also guide the dog. In one experiment, a man walked halfway across a field of soft earth and was then carried away by an overhead cable. His trail was completed by a wheel with shoes attached at one-pace intervals. A dog that was later put on the trail could not distinguish the wheel from the man.

Dogs not only can follow human trails; they can follow the trails of individual humans. Identical twins, however, can create problems. If given the scent of one twin to follow, a dog will pursue a trail made by the other twin. But, if both twins walk through a field together and then split up, the dog can distinguish between them.

In spite of the proven acuity of the dog's nose, some scientists believe that man's nose is just about as sensitive, at least to certain odors. They point out, however, that odors get to the sensitive area of a dog's nose more easily, and that dogs are sensitive to a wider range of smells than men. Also, the dog's brain is much better equipped than man's to handle olfactory data.

RICHARD ALCORN

son River on New York's West Side that houses IFF's executive offices and laboratories. The offices and laboratories are linked by an air-conditioning system, and, as a result, the entire building smells like the inside of a perfume factory. Oddly, Shiftan barely notices the odor. "Do you smell anything?" he solicitously asked a nauseous guest who couldn't smell or even think about anything but the cloying aroma. When the fellow indicated he was about to succumb to the odor, Shiftan expressed surprise: "Really? I guess after working here thirty years I've gotten so used to the fragrance, I can no longer smell it. Like people who live near the railroad but have no trouble sleeping."

In this fragrant environment Shiftan must smell all kinds of concoctions in the course of a day. Seated behind a big wooden desk in his office, he examines long, slender blotters, the ends of which have been dipped in perfume oils and mixtures of oils. Some preparations are near completion, destined to serve in shaving lathers, soaps, face creams, and, of course, perfumes. Others are experiments: One vial, for example, contains a combination of synthetic chemicals blended to approximate the clean underarm odor of a young girl. Still others are samples of chemicals that the company is considering for purchase. It seems the Shiftan nose is also used as a quality-control check on incoming goods—a mundane but extremely important function, since expensive perfume ingredients have exotic origins and are often difficult to identify.

Shiftan's desk is a forest of slender sampling blotters. Each is about eight inches long, carefully marked to indicate the bottle in which it was dipped, and securely held aloft by a weighted holder. From his swivel chair Shiftan makes the round of these blotters, smelling all, discarding most, saving a few that seem interesting, or incomplete but promising. Some simply need more time to reach "dry-out"—the final odor attained by a fine perfume many hours after application.

At IFF much depends on Shiftan's daily tour of the blotters. Based on his olfactory findings, and the findings of his colleagues, the company submits new fragrance creations to major soap manufacturers and giant perfume

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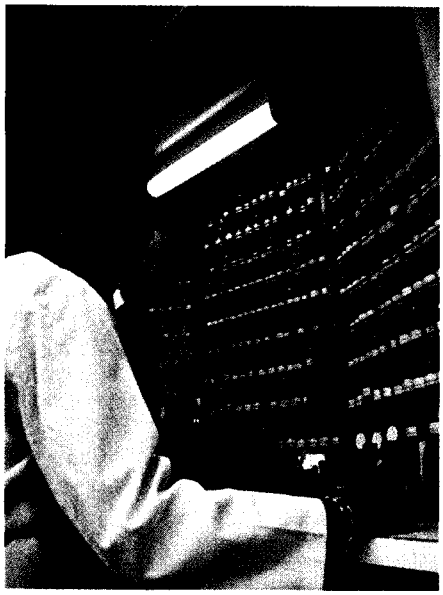


Master perfumer Ernest Shiftan (far left) samples a new fragrance. A formula for a scent developed by Shiftan may contain anywhere from sixty to 175 ingredients, each of which can be broken down into a large number of component chemicals by a machine called the chromatograph (top). At left, Shiftan directs a lab technician in the production of a fragrance.

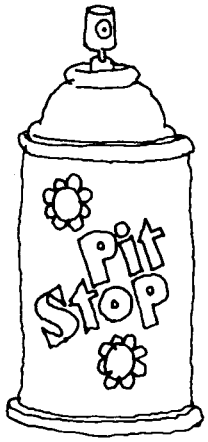
houses for possible inclusion in their new product line, any one of which could mean millions of dollars in sales over a period of years. On the other hand, a Shiftan veto on an incoming shipment of raw materials can mean the loss of an important sale for an entire province of petal growers. Because of the gravity of his decisions, Shiftan does not rush through his blotters.

First he makes certain he is comfortably seated. Curiously, almost all master perfumers prefer to smell sitting down. Next he removes his eyeglasses. He claims he can smell better without them; furthermore, he can give himself "blind tests" by first smelling the blotter, than examining its label.

For Shiftan the act of smelling itself has an importance beyond its economic implications. Mere sniffs or whiffs are simply insufficient. Like a skilled trombonist, his diaphragm moves in a mechanical fashion, drawing past his nostrils and into his lungs a measured amount of air laden with the blotter's fragrance. His face has a totally relaxed, almost bored, expression.

Shiftan, however, is anything but bored while testing a fragrance. As the mélange of odors courses through his respiratory apparatus, his thoughts turn to early odoriferous experiences. He remembers those wonderful little bottles on his mother's bureau when he was eight years old, the odors of Vienna where he studied chemistry, and the smells of Paris where he worked as a young man.

Most creative perfumers get their training in Paris. But although it's the center of the perfume industry, says Shiftan, you don't smell much perfume there, not even on opening night at the theater. "Ever since the War," he says in his hesitating German-French accent, "the French women spend their



THE SELL OF SMELL

Man-made aromas, usually associated with such items as soap, toilet tissues, and mouthwash, also are used to sell a host of other products, ranging from shoes to used cars. Plastic footwear, for example, is often sprayed with a leather scent (a favorite smell of both men and women according to several studies) to impart a touch of the tannery. Similarly, newly made "antique" furniture is frequently doused with a musty odor that smells like old wood. The fake mustiness not only gives the furniture a pleasing aroma but also covers up the distinctive odor of the new wood from which the furniture is made. The "hard smell" technique has also been applied to women's clothing. In one test, stockings with a narcissus odor outsold identical stockings with a fruity or sachet scent. Stockings with no odor at all ran a poor third. Interestingly, many of the women who chose the scented stockings claimed they were more durable.

A favorite fragrance of today's huckster is a concoction known as "new car smell." It resembles the smell of fresh upholstery, new rubber, plastic, paint, and metal that characterizes a new automobile. It does such wonders for sales that used-car buyers might be wiser not to inhale.

Occasionally, however, the sell of smell backfires. One supermarket chain, for example, advertised ham in a newspaper ad using a special ink that gave out a faint odor of ham. An indignant customer complained that her dog had consumed the entire paper.

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HOW THE NOSE KNOWS

Secluded in a deep recess of each nostril, away from the mainstream of air, is a yellowish patch of cells that would easily fit within a thumbprint. These cells, in turn, connect with a series of other cells along a four-inch path in the brain. This system constitutes the entire apparatus for man's sense of smell. This compact arrangement is deceptive in its apparent simplicity. Scientists, who have long since unraveled how the other four senses function, are at a loss to explain the intricacies of smell.

The best theory says that the actual molecules of an odorous substance carried in the air are trapped by the sticky mucus overlying the nose's olfactory cells. Once ensnared, these molecules must fit exactly into receptors on the cell surface. The advantage of this lock-and-key principle is that while certain cells are detecting odors, others are free to respond to newly arriving molecules.

In the rabbit, whose nose has been studied more than that any other animal, it is believed that the 100 million smell receptor cells are arranged in a spatial pattern. Those in front respond to fruit odors while those in the rear are stimulated by oily smelling substances. This segregated system may explain how the nose is able to distinguish among the thousands of odors that pass through it daily.

The untrained human nose can sort out an amazing variety of odors even though its acuity is far below that of other animals that depend on a highly developed sense of smell for detecting food, home, enemies, and a suitable mate. A conservative estimate of the number of odors man can smell is around 2,000, and in almost all these instances the name of the odor is the same as that from which it emanates; rose, skunk, clove, leather, and so on. Unlike primary colors and tastes, odors have yet to be definitely classified into basic pure odors that, when combined with one another, produce all other odors.

Besides the ability to discriminate among thousands of odors, the sense of smell is extremely sensitive. Most odors can be detected in concentrations of less than one one hundred-thousandth of an ounce in an average-sized living room. Since only about 2 per cent of nasally breathed air ordinarily reaches the isolated olfactory cells, some odors may go unnoticed or at least be confused with others, unless a conscious effort is made to sniff the air, creating air currents that carry the odors up into the reaches of the olfactory cells. Once the molecules begin entering the appropriate receptor end of these cells, an electrical impulse is set off down the opposite or nerve fiber end of this dual-purpose cell. These tapered fibrous ends from millions of olfactory cells in each nostril combine into two bundles, enter the brain, and terminate in centers that are associated with emotions, hormone secretion, pleasure, and appetite.

The sense of smell is so fragile that it can be diminished or suppressed altogether simply by opening the mouth. Perhaps this is the reason why people in the air-polluted cities quickly learn to breath orally, while those in the fragrant countryside are more tight-lipped.

money on appliances, not perfume. The Parisian department stores sell cheap cologne by the quart, and that's what most French women buy."

Of course, in Paris, like anywhere else in the world, sophisticated and cultured women do wear perfume, and Shiftan is amused by the different reasons for which it is worn. "The French woman uses perfume to give herself a lift—the fragrance becomes a part of herself, her personality. The American woman shows off her perfume. She hopes to hear the comment, 'What perfume are you wearing?' at least three times a day. The comparison is much like that of the drinking habits of the men," chuckles Shiftan. "The Frenchman drinks wine for the taste; the American, largely for the effect of the alcohol."

American women, Shiftan believes, find it difficult to select a perfume, even when they are buying it for other reasons than showing it off. Most women make one of two mistakes when they pick a perfume, he claims. Either a girl likes the way a perfume smells on another girl so she buys it for herself, or she just uses her mother's. Possibly she gets perfume as a gift.

But perfumes smell differently on different women. "We have an old saying," Shiftan says. "The girl finishes the perfume." He suggests that the best way to pick out a suitable perfume is to go to a good department store. "As a start, get a good salesgirl's recommendation for two fragrances and put one on each wrist. Don't touch your wrist to your nose, but smell each one at a distance of about four inches. If one appeals to you, buy a little bottle and try it for a while. If you're not sure, ask others how they like it on you. If neither seems especially interesting, go back the next day, tell the salesgirl as best you can what you didn't like about the fragrances, and try two new ones."

Shiftan says one cannot emphasize enough the importance of smelling the fragrance on the skin—not from the bottle or a blotter—and of trying no more than one on each wrist: "It's amazing how each woman's body odor changes and enhances the perfume. Women who know I'm a perfumer frequently come over to me at parties and ask me to identify the scent they are wearing. Usually I can tell what they have on. But occasionally I am fooled by the woman's odor, and sometimes the fragrance that stumps me turns out to be one of my own creations."

In fact, skin odor is so distinctive that for Shiftan it alone is often enough to identify the person from whom it emanates. Once, for example, he approached a lawn party that was quite a distance upwind—too far for him to visually identify any of the thirty or so women in attendance. Shiftan instantly and conclusively smelled the presence of his wife, who was, in fact, there, although he had no reason to believe she would be. "In America people use too many deodorants and take too many showers for me to do this consistently. But in Europe I could tell when people had been in my house, even if they had left hours before my arrival. I could always detect the presence of my Uncle Fred—my mother's brother-in-law. He used a certain hair lotion and a certain mouthwash, and I could smell the combination on the stairs even before I reached the apartment. That odor lingered for at least twelve hours. But even if Uncle Fred had changed tonic or mouthwash, I still would have been able to smell him. He always had a certain smoked fish for breakfast that no one else in the family ate, and I could smell his breath with its aroma of that fish long after he left."

Sometimes Shiftan himself is detected by scent. His first job mixing perfume oils was in a toilet-soap factory. He used to meet his girl friend on her way home from school. The girl's mother could always tell when they had met because the girl's clothes reeked of perfume oils.

On another occasion Shiftan had spent the day experimenting with a new research chemical that exhibited a delayed reaction. He was thrown off the train that evening when the odor suddenly blossomed forth and overcame the other passengers.

Perhaps Shiftan's funniest occupational problem occurred while he was awaiting his immigration permit, which he needed to enter the United States. He found himself stranded in the Dominican Republic for five months and decided to earn his living by setting up a small laboratory in his home. Each evening local people, attracted by the smell of perfume, would serenade him from beneath his window in the hope of getting some samples. "I made a deal," says Shiftan. "I would give them some perfume if they would go play somewhere else."

The Dominicans accidentally provided Shiftan with an interesting exercise in cultural relativism. He had a black Dominican maid who once took his shoes to a local black shoemaker. The maid returned, laughing herself silly, recalls Shiftan. The shoemaker's comment: "Those white people smell so bad, they even have to perfume their shoes!"

Possibly the most ironic facet of "the nose's" existence is his Achilles heel. Shiftan exists in a world in which he is naturally uncomfortable. Without his allergy shot every Saturday morning, the balmy bouquet of a beautiful blossom would merely make "the nose's" eyes water. □

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SR REVIEWS

Books

Bombs (Quietly, Please) Away!

BY NOAM CHOMSKY

VOICES FROM THE PLAIN OF JARS: Life Under an Air War
compiled by Fred Branfman
Harper-Colophon, 160 pp., paperback $1.95

On March 31, 1968, Lyndon Johnson ordered a partial bombing halt over North Vietnam. On the same day a cable to U.S. ambassadors stated that "air power now used north of 20th [parallel] can probably be used in Laos (where no policy change planned) and in SVN [South Vietnam]." One of the targets was the Plain of Jars, in northeastern Laos, which had been bombed intermittently since 1964 when it fell into the hands of the Pathet Lao.

In November 1968 negotiations began in Paris. The bombing of North Vietnam was temporarily halted, and again the bombers were shifted to South Vietnam and to Laos. Sixteen months later T. D. Allman, a correspondent for the *Far Eastern Economic Review*, reported that, in the judgment of observers, the "five-fold escalation of the U.S. bombing in Laos" was "the most significant development in the recent history of the Laotian war," and that it "convinced the North Vietnamese that they had to meet force with counter-force." The bombing was now primarily directed against settled areas. Villagers fled to forests and hills.

In mid-1969 infiltration fell off sharply along the trails. As air power was again released, strikes against Northern Laos were sharply accelerated. After massive bombardment the CIA mercenary army swept over the Plain of Jars, murdering and pillaging. The remnants of the population were removed to the Vientiane Plain.

"In September 1969, after a recorded history of seven hundred years, the Plain of Jars disappeared." With these words Fred Branfman opens this searing account of the destruction of a peaceful society of 50,000 by a secret air war that was "aimed at the systematic destruction of the material basis of the civilian society," in the accurate phrase of a Belgian United Nations adviser.

Why? Speaking for the administration, former Ambassador William Sullivan has conceded in Senate testimony that the war in Northern Laos "has nothing to do with operations in South Vietnam or Cambodia." In earlier Senate testimony he had hinted at the primary motivation: Laos is being used as a buffer to protect the interests of the Thai elite, long the main support for American programs in Southeast Asia. The Pentagon Papers reveal that as early as 1954 Thailand had been designated by the National Security Council as the "focal point of U.S. covert and psychological operations in Southeast Asia." George Ball, then Undersecretary of State, in a memorandum of July 1, 1965, observed that "Securing the Mekong Valley will be critical in any long-run solution, whether by the partition of Laos with Thai-U.S. forces occupying the western half" or by some other arrangement. This remark foreshadows later developments: the economic integration of U.S.-dominated areas of Laos with Thailand, and the introduction of Thai mercenaries, contrary to explicit Congressional directives. The destruction of the civilian society of Northern Laos was one element in these long-range plans.

There were, no doubt, other reasons for the air war against Northern Laos. Modern history attests, amply, the consequences of overwhelming power at the service of a fanatic ideology. American planners operated on the assumption that the U.S. position throughout the world might collapse if the forces of revolutionary nationalism in Indochina attained victory. In the Pentagon Papers there is no instance of any hesitation with regard to any military policy except in terms of the potential costs to the American planners and interests they represent, - one of these costs being popular revulsion. In Northern Laos the war was a carefully guarded secret, and the costs were minute. Correspondingly, the destruction was total. Flying over the Plain of Jars in 1971, T. D. Allman describes it as a deserted wasteland, "empty and ravaged, a striking example of what less than three years of intensive U.S. bombing can do to a rural area." The plain may be uninhabitable for decades because of the vast quantities of unexploded ordnance.

Furthermore, U.S. planners have always been concerned over the "ideological threat" of Asian communism—the threat, very simply, that it might work. The slow and patient steps of

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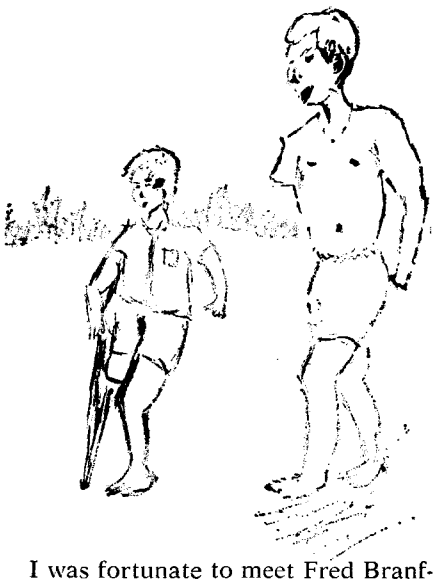
the Pathet Lao towards developing Lao nationalism and implementing a mild social revolution might well have succeeded in the absence of American counterforce, producing an undesirable "demonstration effect." The society might have developed along lines inconsistent with the U.S. interests in maintaining Western-oriented regimes that play their assigned roles in the global economy. Therefore, the material basis of the civilian society had to be destroyed.

I happened to arrive in Vientiane shortly after the refugees from the plain had been removed to nearby camps.



I was fortunate to meet Fred Branfman, then an educational adviser for AID in Laos, and spent many days with him visiting camps and interviewing refugees and other Laotians. At that time, and in the years since, Branfman devoted himself to making their story known and explaining its implications. He sees the Plain of Jars as "a very real symbol of the fate awaiting Third World societies throughout the world unless the capacity of the leaders of today's superstates to wage automated war unilaterally is checked."

The voices of the victims are rarely heard within the imperial power. Rather, we read that Asian peasants do not love life and cannot conceive of happiness, that their minds have atrophied, and that they have the mentality of six-year-olds—though, miraculously, they seem "eight feet tall" when "controlled" by the Communists, a paradox that has always perplexed American colonial administrators. The peasants of Asia are mere things, to be manipulated and controlled, protected from internal enemies that they are too ignorant to fear, and to be organized in a manner that we, in our wisdom, understand to be most suitable for them. Why then listen to their hopes and memories, or their cries of pain?

It is not surprising that the CIA eventually caused Branfman to be expelled from Laos. His work is profoundly subversive, not only because he has, more than anyone else, exposed the facts, but more significantly because he has insisted that the natives are human. By doing so, he challenges the most deeply held, though rarely acknowledged, convictions of what can accurately be called the imperial masters. Visiting refugee camps with him in Laos was a shattering personal experience for me. The stories and impressions he has collected from the refugees will, I am sure, have the same impact on others, at least on those whose minds have not been mutilated by the deceit of state propaganda and the subtler manifestations of imperial ideology that are in the long run still more corrupting.

The Plain of Jars is no more, but the air war goes on. The U.S. government appears not really to hope to convince the public of its version of the facts, but merely to sow confusion, relying on the natural tendency to trust in authority and to avoid complicating and disturbing issues. The official response to the extensive documentation of U.S. atrocities in Laos is that the situation is more complex: The American air war is a response to an "unprovoked invasion" by North Vietnam. To be sure, the refugees seem unaware of this. They did not perceive the North Vietnamese control and rarely report even the presence of Vietnamese. But what can one expect of a six-year-old mind? As I write, the reports grow louder and stronger that American bombers are systematically weakening and destroying dikes. But the press, in the interests of objectivity, has featured denials by the government, and its miserable pretense that the predicted catastrophe will result from failure to repair the dikes properly after last year's floods, and then its hedgings that military targets have been placed too near the dikes, so naturally a few may have been hit by mistake. The situation is therefore complex. How can we be sure of the truth? How could Speer be sure that extermination camps existed? How can the simple Russian be sure that Dubček was not manipulated by the CIA? The confused citizen turns to other pursuits, and American society descends yet another step toward utter moral corruption. □

The illustrations accompanying this article, all from Mr. Branfman's book, were drawn by Laotian villagers ranging in age from twelve to thirty-two.

THE STICKS: A Profile of Essex County, New York
By Burton Bernstein
Dodd, Mead, 175 pp., $5.95

"THEY'LL CUT OFF YOUR PROJECT": A Mingo County Chronicle
by Huey Perry
Praeger, 256 pp., $7.95

Reviewed by Joseph Kanon

So much prose on Appalachian poverty has spilled over the book counters these last few years that it is surprising to discover writers with more to say on the subject. But the awful fact, of course, is that the poverty is as much there as ever, and its endurance alone is cause for testimony. The subject is hackneyed only in the way pain is—familiar but continually fresh.

Although poverty is only incidentally a subject of *The Sticks*—a profile (in fact, an expanded *New Yorker* profile) of Essex County, that large chunk of northern New York that borders on Lake Champlain and contains the highest of the Adirondacks—it becomes the most important one. There is some question about whether Essex County is properly Appalachian at all, but it's not a subject of hot debate among the people who share the grim rural poverty, played-out industries, and seemingly helpless future of the unquestionable Appalachia farther south. Essex is different, in part, because it is so extraordinarily beautiful and wild—a sizable portion is kept by the state as a preserve—that it has attracted the mixed blessing of a considerable tourist trade. The heyday of the fashionable hotels ended after World War I, but Essex has got scenery, some history (Fort Ticonderoga is there, and John Brown's body lies a-molderin' at North Elba), a number of Disney-type fantasy parks (Santa's Workshop, the Land of Makebelieve, *et al.*), and plenty of space and snow for winter sports. Yet all this is marginal, not to mention seasonal, at best, and in 1961 Essex was officially declared a depressed area by the federal government.

The Sticks is not strictly an account of why this happened, though we are told of the demise of the farms, timber industry, pulp mills, and iron mines. Bernstein goes on at length about the county's history and personalities—Maxim Gorky, Rockwell Kent—and spends time talking with some of its inhabitants, for flavor. But inevitably this kind of evocative overview is saturated with the sense of a drained vitality. There are portraits of

Joseph Kanon is associate books editor of *SR*.

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Burton Bernstein

rugged mountain families meekly handing over their government food stamps at the supermarket and conversations like this one, with an old man: "They see our nice clean houses and plenty of space for kids to run around in, and they think everything is peachy with us. Well, it ain't. We used to be able to make do by ourselves but it doesn't seem to work out that way anymore. Now we're in danger of disappearing altogether, like the old giant spruce."

Bernstein has given us a reflective, well-written portrait of an area losing hold of itself. Perhaps this should be enough, but somehow it isn't. The underlying subject—that the good life of the sticks, which so many city people now profess to want, is becoming impossible for the people who live it—is larger than this admittedly nice local report, and one can't help but wish Bernstein had given it a closer examination. We never feel involved beyond the camera lens, and, ironically, the very fineness of the writing so distances us from its subject that we end up, like the Adirondacks tourists, just passing through.

On the other hand, *"They'll Cut Off Your Project,"* Huey Perry's account of Mingo County, West Virginia, is as vivid and personal a book as one could ask for. It is a plain, straightforward report of his years (1965–1971) as executive director of Mingo's Economic Opportunity Commission and, as such, may well become a casebook of what really went on during those heady days of the War on Poverty. Perry's achievement is to give flesh to the familiar abstractions—we learn not only that there is corruption but who's responsible and how they do it.

Perhaps because he is a native son and a pragmatist, Perry dwells neither on the history of the county (though the McCoys and Hatfields feuded there, for instance) nor the background of its present plight, but they walk through his pages in the cast of supporting characters—the disabled miners with silicosis but no pensions, the absentee landlords, the politicians who distribute $5 bills outside the polls. He is not a stylist, and the book has none of the lyricism of, say, Harry Caudill's famous *Night Comes to the Cumberlands*; but Perry has information, a personal concern, and a natural storytelling ability that makes his book come alive in ways one might never have expected. He draws the reader into a celebration of small victories and can make us feel a sense of energy and hope when a poor man finally stands up at a public meeting and speaks his mind. It is in many ways a

Huey Perry

dramatic story, often surprisingly funny and, remarkably, it never sinks into despair.

Certainly there seemed cause for despair. Mingo County was not only hard-core Appalachia—3,000 families survived on less than $3,000 a year—but was saddled with an outrageous political machine whose antics caused *Look* to call Mingo the "vote fraud center of the world." Votes were bought, registration lists scandalous (in one district of about 200 people, 511 were registered), kickbacks from county employees so ordinary as to be beyond comment, welfare laborers made to work for local politicians (in one case, building a barbecue pit)—a whole litany of corruption that made Mingo's poverty seem not just a local condition but the natural order of things.

Given all this, it is extraordinary that Perry's EOC managed to do anything at all, and, indeed, the greater part of the book inevitably concerns itself with the fight against the local political machine. At first delighted over the prospect of new federal money filtering into the county (*i.e.*, to themselves), the machine became disturbed when poor people began organizing themselves, not merely for things like Head Start or cooperative stores, but for the alarming Mingo County Fair Elections Committee. Consequently, programs for hot school lunches or home improvement became subsidiary issues to the big question of political control, particularly after the 1967 Green Amendment to the Economic Opportunity Act was passed, opening up the possibility of county court administration of poverty programs—thus placing power back in the hands of some of the very people who were partly responsible for the mess in the first place. Perry's office managed to save itself from this fate by playing one gubernatorial candidate against the other (Perry being a fairly shrewd horse trader himself), but it was a long and exhausting fight, and one can't help

Note: Since the Literary I.Q. will not appear in future issues, no further contributions will be accepted.

YOUR LITERARY I.Q.

Conducted by David M. Glixon

A REGIMEN OF DOCTORS

Identify these physicians by the statements about them. This diagnostic test is prescribed by Stanley Fields of Brooklyn, New York, and the cure is administered on page 65.

1. Dr. Archie ( )	A. treated a guilt-ridden student
2. Dr. Aziz ( )	B. inspired a young doctor to do research
3. Dr. Copeland ( )	C. objected to his daughter's marriage
4. Dr. Darrell ( )	D. was caught between factions of the Russian Revolution
5. Dr. Gibbs ( )	E. opposed his brother and his townsmen
6. Dr. Gottlieb ( )	F. helped Thea become a great singer
7. Dr. Manette ( )	G. crushed Tristram's nose with his new forceps
8. Dr. Sloper ( )	H. fathered a child by a woman who had (on his advice) married another man
9. Dr. Slop ( )	I. suffered imprisonment in the Bastille
10. Dr. Stockmann ( )	J. Became anti-British after being falsely accused of a crime
11. Dr. Zhivago ( )	K. took care of Grovers Corners, New Hampshire.
12. Dr. Zosimov ( )	L. confided in a deaf-mute

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but speculate how much more might have been accomplished without this drain of time and energy.

Perry, however, doesn't permit himself the luxury of this kind of speculation. He is more interested in doing things. As he takes us straight through the endless public meetings and wranglings with the local power structure and even the FBI, one is impressed not only by the considerable amount he did accomplish but by his sheer persistence. And though he is careful not to make himself the subject of the book—it is neither sentimental nor self-serving—*"They'll Cut Off Your Project"* is, of course, the story of his own political learning process as well. He was nothing if not resourceful. When a poor people's cooperative store was denied permission to accept food stamps on grounds that the people were stockholders in it, Perry promptly bought a share of A&P in their name, making that chain's stamp acceptance equally illegal. The decision was reversed with dazzling speed.

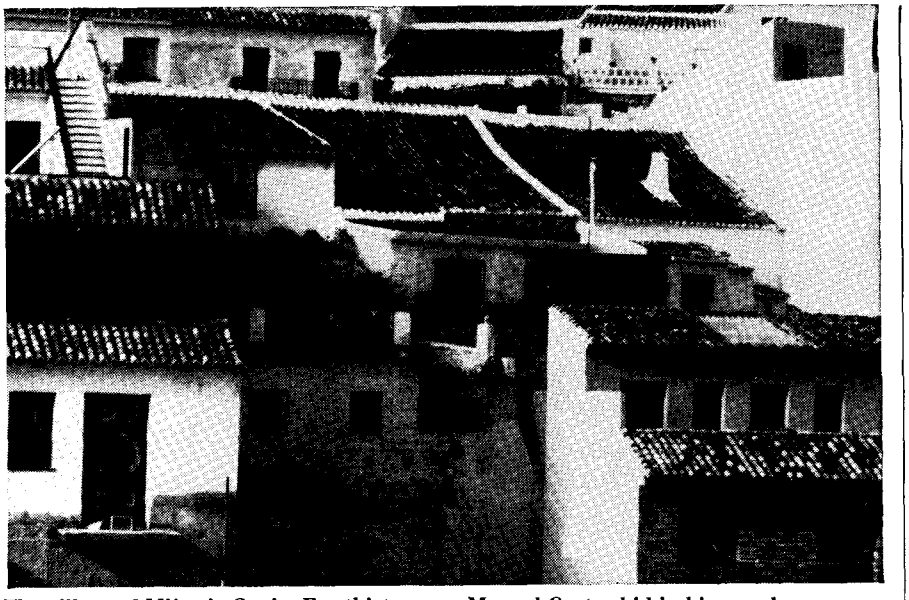
Perry's book is by no means a success story—for one thing, by the time his EOC managed to avoid a county court takeover, the change in federal administrations had made it a somewhat pyrrhic victory. But it is an encouraging book nonetheless because it admits possibilities. Something incalculable did happen in Mingo County in the 1960s. If the familiar cycle was not broken, at least it jumped a little and showed indications of movement where none had been expected. And it is an indication of this author's pluck that the crushing court decision that ends the book is treated not as tragedy but with irony. Four members of the machine are finally nailed for voting fraud and brought to trial. The evidence against them seems virtually overwhelming, but they are acquitted, and as they leave the courtroom one of them remarks, in the closing line of the book, "I thank God we still have justice in this country."

Well, no, not yet, but maybe. Nobody, including Mr. Perry in this modest but valuable book, ever said it was going to be easy. □

IN HIDING:
The Life of Manuel Cortes
by Ronald Fraser
Pantheon, 238 pp., $6.95

Reviewed by Stanley Koven

It was his bad luck to be born with scruples in an age when virtue is its own deterrent. How was he to know



The village of Mijas in Spain. For thirty years Manuel Cortes hid in his own home.

that soon the bright folks would be carrying *The Banality of Evil* under their arms?

From the moment Manolo enlisted in the struggle to keep Spain safe for socialism and democracy, he was doomed to serve as history's freak. Because he would not kill, because he would not frivolously put another man in prison or steal his land, because he was, as they say, fastidious, he was banished—indeed, he banished himself—to thirty years as a ghost.

For thirty years he haunted his own house—invisible, voiceless, squandering his potency in the hollows of walls, in the space contrived beneath a stair, in the upstairs room kept perpetually locked. Through the chinks of doors and the cracks of windows, through the ignoble keyhole, Manolo participated, but only as witness to the works of man: the marriage of his only daughter, the death of a grandchild, the busybodying of neighbors, and the Guardia Civil, but for whom he would not lie fallow, in hiding.

In Hiding is the story of Manuel (Manolo) Cortes, artfully and honestly recorded and sorted out by Ronald Fraser, an editor of the *New Left Review* (London), who has lived in Spain. This is Manolo, speaking contrapuntally with his wife and his daughter, and a Greek chorus of notes sprung from the baddest of wars. Ladies and gentlemen, if Vietnam needs no introduction, will you welcome please the Spanish Civil War, and what came after that?

The Spanish Civil War was, in fact, what they tell us Vietnam is all about. After 5,000 years Spain had put together her first republican government, a loose and quarrelsome coalition of the Left—Socialists, Communists, Anarchists. In the five years' grace bestowed by God and Francisco Franco, the republic had made a good start in the direction of public education and a proper minimum wage, a tentative step in the direction of long-deferred land reform. Then, in 1936, God (or his earthly surrogates in the True Church) and Franco, then chief of the Moroccan-based Spanish Foreign Legion, launched their coup. Three years later it was done with the crucial assistance of Nazi Germany and Fascist Italy on the side of the insurgents; done despite the tanks and commissars of Stalin, the liberal volunteers of the West, and Hemingway—all marching with the Republic. It was done; the foreign allies were swept from the land, and the Spanish sense of fair play toward the loser was to run its terrible, unforgiving course.

In the Andalusian village of Mijas, Manolo served as the last leftist mayor in 1936–37, the year when the Right was gnawing at the extremities of its quarry. It was a perilous time for decency, and Manolo, being both Left and decent, was courting disaster on either hand: intervening to spare the lives of suspected Falangists and standing firm for legality against mobs bent on seizing the land of their neighbors. One day ahead of Franco's conquering legions, Manolo fled to the north to join the republican army as a medical orderly. His wife and infant daughter remained in their village. And then it was over.

Stanley Koven is a television documentary writer-producer and playwright who spent three years in Mijas, Spain, the scene of *In Hiding*.

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WIT TWISTER NO. 287

Edited by ARTHUR SWAN

The object of the game is to complete the poem by thinking of one word whose letters, when rearranged, will yield the appropriate word for each series of blanks. Each dash within a blank corresponds to a letter of the word.

The hen, untiring — — — — —,
eggs supplies

From — — — — — maturation
till she dies.

She should arrange, with hens of
like belief,

A — — — — — for their mutual
relief.

A. S.

(Answer on page 59)

FRASER YOUNG LITERARY CRYPT NO. 1522

A cryptogram is writing in cipher. Every letter is part of a code that remains constant throughout the puzzle. Answer No. 1522 will be found in the next issue.

JK DIA LSW VIFWXR PW-
ELAXW DIA RVJFC RVLR JX
RVW PWXR QIYJED, DIAS
VIFWXRD VLX LYSWLOD
PWWF EISSAQRWO.

XJOFWD VLSSJX

Answer to Literary Crypt No. 1521

There is no greater hatred in the world than the hatred of ignorance for knowledge.

Galileo

Having acquitted himself nobly, Manolo's options were now severely limited: He could flee to France, or he could slink back to his village and disappear from acceptable society. He chose ghosthood. Aside from his wife, his daughter, and one or two close relatives, no one must know that he was alive and well in Mijas. Not only were the new Falangist rulers hungry for political retribution, but his former comrades now had scores of their own to settle with him.

He haunted, successively, three houses, stuffing pillows into his mouth to smother the telltale coughing. His teeth rotted, and he pulled them out with his own hands. If he fell ill, his daughter feigned the symptoms to obtain a doctor's diagnosis. Paranoia stalked even his love-making (pregnancy was unthinkable). His wife, charged with sole support of the household, was obliged to walk thirty miles through the night to Malaga, there to sell precious eggs on the black market, and then to return the next day on foot with the few pesetas profit. Their household became a hermitage, virtually a scandal in a town where doors are always open, where every intimate detail is shared among the women.

And Juliana, that stoic wife, was not above complaining:

He wanted everything his way . . . I got fed up and worn out too. . . . Not every woman was ready to make the sacrifices I made. . . . But I had to put up with it, it was my duty to do so.

And Manolo:

I never once thought of giving myself up, even in the worst moments of despair, never. . . . I've always had too much pride to bow my head. . . . But I'm optimistic by nature. I always thought something would change, and I was right in the end—though the end has been a long time in coming.

Then, by some merciful miracle of inertia, it was 1969, just four days short of thirty years later. Manuel, Juliana (she supporting him because he'd forgotten how to walk in shoes), and their daughter, Maria, presented themselves to the authorities. Under terms of a general amnesty granted in the dotage of Franco's regime, Manolo could return to the streets of his Mijas—a Mijas now purified of all subversion. This was the Brave New Spain, where the ancient nemesis of wrong-think, the Guardia Civil, now contented themselves with busting the dope smokers and kicking the more disreputable of the foreigners out of town. "Imagine being shut up for thirty years for nothing," the mellifluous mayor of new Mijas exclaimed, "just for an idea."

Manolo had survived, if only to be affrighted by the music of, yes, discothèques; if only to be crushed in the slanting streets by the busloads of tourists now flooding this "classic Andalusian white village." His neighbors had grown fat and slack in the mind after selling their land to the foreign investors; their sons and daughters affected the wardrobes and manners of unisex, danced to the Stones, and mingled with the hip and the jet set at La Reja. The smart ones were learning English, and horny matrons from the north were buying boys for the season.

Manolo:

This has been the biggest disappointment to me in coming back to the world. For today's youth is tomorrow's leaders—and what hope is there with a youth that knows nothing and cares even less?

Manuel Cortes, who could not anticipate the ascendancy of the banality of evil, had paid the price of its corollary —the irrelevance of virtue. □

ERNESTO:
A memoir of Che Guevara
by Hilda Gadea
Doubleday, 222 pp., $6.95

Reviewed by Richard Seaver

Ever since Che Guevara was murdered in captivity in the little town of Vallegrande, Bolivia, his mythic stature has been growing. Even in his lifetime there was something legendary about Che: his purity; his dedication to the Revolution, not just in Latin America but everywhere in the world where oppression, poverty, and exploitation ground down the masses for the benefit of the few; his physical beauty; his gut courage in the face of daily pain and discomfort. Even his impossible romanticism contributed to the myth. To many he was David overcoming Goliath, Robin Hood giving to the poor; and when they saw the death photos, he was Jesus Christ after the descent from the cross with, this time, the traitors and the Roman legionnaires wearing wrinkled khakis and bearing automatic rifles courtesy of the Alliance for Progress—or its military equivalent.

Indeed, so shrouded in legend is the dead Che that now, scarcely five years after his death, one finds it hard to think of him as other than symbol,

Richard Seaver is an editor, a critic, and a translator.

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and one realizes how very little we knew of the man. Che's own writings, including his *Diary* and *Reminiscences of the Revolutionary War*, hardly help, for they tend to buttress the already existing image of the exemplary revolutionary. Ricardo Rojo's *My Friend Che* adds some light, but not very much, for, although he knew Che in his youth, their friendship, as Hilda Gadea tells us, was not really profound or intimate, and their political differences —Rojo became a member of the Argentine political establishment—were such as to make certain of his conclusions doubtful.

Thus, one approached Hilda Gadea's book with a mixture of hope and expectation. She was Che's first wife, and she had known him during the three crucial years prior to his departure for Cuba aboard the *Granma*. Ideologically, she was close to Che: When they met, Hilda Gadea was a political exile in Guatemala, forced to flee her native Peru because of her militant activities on behalf of APRA (Alianza Popular Revolucionaria Americana), the party of the democratic Left. Presumably, during the years 1954 to 1956 she saw more of Che and had more insights into his mind and heart than anyone else alive. Even the fact that during the two years he was fighting in the mountains of Cuba he met and fell in love with another woman, whom he later married, does not seem to have prejudiced the author against him:

> On January 1, 1959 . . . I arrived in Havana with my little daughter. With the candor that has always characterized him, Ernesto forthrightly told me that he had another woman, whom he had met in the campaign of Santa Clara. The pain was deep in me, but, following our convictions, we agreed on a divorce.
>
> I am still affected by the memory of the moment when, realizing my hurt, he said: "Better I had died in combat."
>
> For an instant I looked at him without saying anything.
>
> Though I was losing so much at that time, I thought of the fact that there were so many important tasks to be done, for which he was so vital: he *had* to have remained alive. He had to build a new society . . . he had to give his whole effort to the struggle for the liberation of America. No, I was happy that he had not died in combat, sincerely happy. . . .

Much of what is wrong with Hilda Gadea's book is evident in that passage. She has made the same mistake—albeit at the other end of the political spectrum—of which she accuses Richard Rojo. The passage is steeped in platitudinous pieties and revolutionary propaganda that often make it read more like a Politburo report out of committee than a personal memoir and that deprive not only Che but also most of the other figures—including the young Fidel and Raúl—of their individuality. The author also tends to drown feelings, emotions, and reactions in a sea of small talk and pointless detail, which further frustrate even the most well-disposed reader. I have a suspicion, but it is no more than that, there may well have been a very deep and meaningful relationship between the author and Ernesto Guevara, but in these pages it seems one of the most desultory and passionless affairs of all time. The dialogues between them, even allowing for the faults in a translation that often reads as though English were the translators' second—or third—tongue, have all the verve and color of a Stalinist-era epic of the *kolkhoz*. At one point Che tells Hilda he is going to Mexico, where he may try to find a job in the Mexican movie industry. To which Hilda responds:

> I don't think a man like you, with your background and your ideals of justice, can find the means of realizing these ideals in films, except in a country where the revolution is in power. In any capitalist country it would be sheer frustration. Better any other job, even street cleaning. Even as an extra you'd be right in that ambiance of distorted perspective. . . .

Maybe she did talk like that, which might explain why Che left her. The basic problem with the book, though, is exposed by the author in her introduction: "The essence of Che's personality which I want to project herein is that of a true revolutionary who daily rises above himself, a man . . . who through his own strength is always able to give something more to society. . . ."

Having defined the mold, she has written to fit it, giving us, in essence, a portrait bathed in the same aureole as that used by the propagandists and

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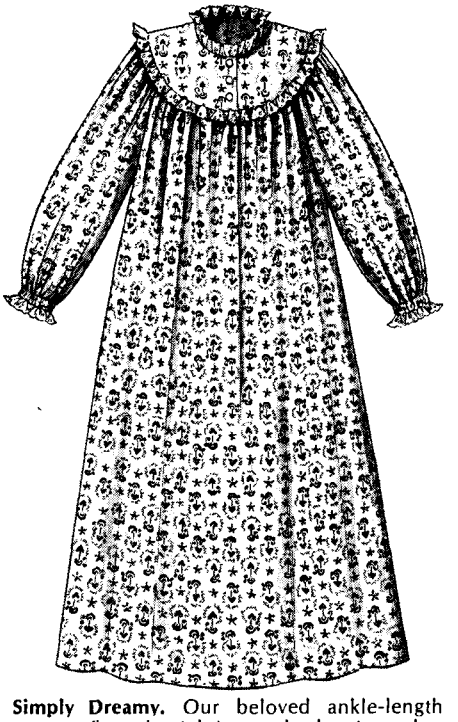

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the legend makers. Hilda Gadea resisted writing this memoir for many years. But now, having opted to break her silence, she has done a disservice to Che, and to the revolution for which he died, by painting him like just another of those plaster saints that are sold for a handful of coins outside churches. □

GENERATIONS:
A Collage on Youthcult
by Clifford Adelman
Praeger, 321 pp., $7.95

THE PAPER REVOLUTIONARIES:
The Rise of the Underground Press
by Laurence Leamer
Simon & Schuster, 220 pp., $8.95

Reviewed by Norman Schreiber

Two more books on the youth culture have been released, and once more it's time to play the ritual game Whom Do You Trust? If we could just know whether card-carrying members of the New Consciousness are Athenians, Romans, or Visigoths, we'd know what final words to say to our barbers and our stockbrokers. We'd know what fables to tell our children and our parents.

Generations is the more ambitious and the more flawed. Clifford Adelman, who has taught at CCNY and Yale, "wished to verify the extent to which the equation of the youthcult with the multifarious spirits of counter culture and counter politics was justified." His style has all the grace of a doctoral thesis gone amok, but he presents us with information worth examining. As Adelman puts it, "Reality has a fortuitous way of inducing frustration."

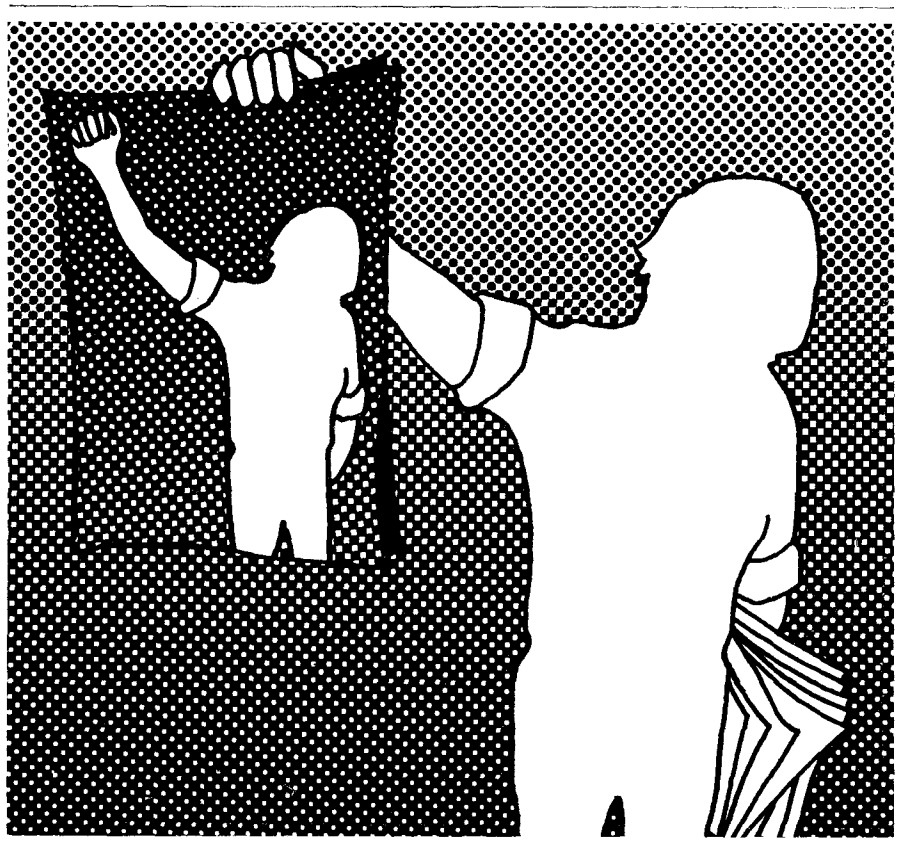
Adelman contends that the various figures of counterculture and counterpolitics constitute an elite (generally older) that has little actual contact with the mass of youthcult. ("Elite" and "youthcult" are his terms). Moreover, this youthcult itself he sees as little more than a mass of lazy, willful, basically right-wing mouths, waiting to be fed after uttering slogans. His research data (530 questionnaires and an additional seventy or eighty interviews) indicate that the core members of the youthcult exist in an "audio culture," its language reduced to a few general terms, such as *heavy, far out, thing, pig.* "The serious issue is that, for those who did *not* emerge from a print-visual culture, such a dictionary so levels language that perception, thought, and communication become impossible. . . . The case can rest on such a frequently utilized phrase as 'had a thing about,' 'thing' being a word that youthcult substitutes not merely for all objects, but for events, emotions, inner processes, ideas, institutions, movements, in fact for most potential noun categories in the phenomenal world. The heavy use of 'thing' itself expresses the refusal to confront the particularity of both inner and external environments."

Adelman does not write with a forked tongue but a curled lip. He constantly refers to Buckminster Fuller as "Bucky" and to Charles Reich as "Charlie." But snide as he is, his information has some value. The prospect of a generation depriving itself of conceptual sensitivity is frightening to literate and politically aware people. "If the college dean offers an inadequate answer to some peripheral question," Adelman asks, ". . . and is called a 'Fascist Pig,' what are you going to call Ronnie Reagan when he lets loose his promised bloodbath?"

Yet contradictions arise. If Fuller, Reich, McLuhan, *et al.*, have given legitimacy to an antiliterate trend through their works, as Adelman suggests, then somebody is reading. In building his case for the separation of youthcult and the elite, Adelman laments the fact that Carl Snyder, a former *Earth* magazine staffer, who is twenty-eight, wrote about Charles Mingus for an eighteen-year-old audience that presumably does not care about jazz. Yet more letters to *Earth*'s music department asked for articles about Pharaoh Sanders, a jazzman, than for the latest British rock group. Finally, Adelman makes many statements about the quality of words and the impact of media, but nowhere is there any kind of detailed discussion of drugs. Do drugs play any role in this process of deparliculization? Do drugs lead to the inarticulateness and selfishness he deplores? We must know the difference between Horse and a handsaw.

The Paper Revolutionaries is a reasonably straightforward account of the life and times of America's underground press. After dishing out a who-what-when-where-why-how of historical background, Laurence Leamer, who was an associate editor of *Newsweek*, commences a carefully researched study of the "undergrounds." In the births of the *Los Angeles Free Press, Berkeley Barb, The Oracle,* and *East Village Other,* he notes the manic relationship between radical politics and cultural radicalism. Throughout the young history of this journalism, the two polar opposites flirt, make love, or bitterly sleep apart. The description of

Norman Schreiber has written extensively about photography, rock music, and other entertainments for mind and body.



Cover art from "The Paper Revolutionaries."

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this tightrope dance between bombs and culture is not only interesting in itself but reveals many of the strengths and contradictions of that amorphous phenomenon called the New Consciousness.

Leamer asserts that the underground press has covered and continues to cover material the established press refuses to or is unable to cover (e.g., community-police confrontations, radical news events, music news). He feels the contempt shown the underground press by many members of the established press may have dangerous repercussions; indictments already obtained against the undergrounds are, he points out, precedents for action against the established press.

Leamer properly devotes a good deal of space to those who have initiated the underground papers. But the case presented by *Generations* makes one want to know more about the staff and more about the readers. How insulated is the "elite"? How insulated is the "youthcult"? Similarly, one is anxious to know about the editorial processes at the various undergrounds. How do stories get to be written—assignments? writers' requests? readers' suggestions? What happens to the copy before it is set into type? This may seem mere desire for shop talk, but *Rolling Stone*, for example, is precisely edited so that stance, as well as style, conforms to the publication's conception of itself and its function. Thus, the interaction among *Rolling Stone*'s editors, writers, and readers is pertinent to the youth culture's evolving perceptions.

Generations and *The Paper Revolutionaries*, then, present two distinct views of youth culture. Adelman feels that there is an alarming trend toward nonliteracy; Leamer points to newspapers as the most palpable contribution of the youth culture. Both may be right. But Adelman's research is too spotty. He substitutes polemics for polls and arrives at conclusions too quickly. He is like a paleontologist who finds a chicken bone from yesterday's lunch and automatically reconstructs a dinosaur. Leamer's research, on the other hand, is thorough—few opinions intrude upon his assembled facts—but by omitting the interplay between people and process he has lost the opportunity to provide the kind of complex overview the youth culture needs. Looking at the two books supporting each other on the shelf, one can only wish the authors had had the chance to read each other's work. □

Answer to Wit Twister, page 56: layer, early, relay.

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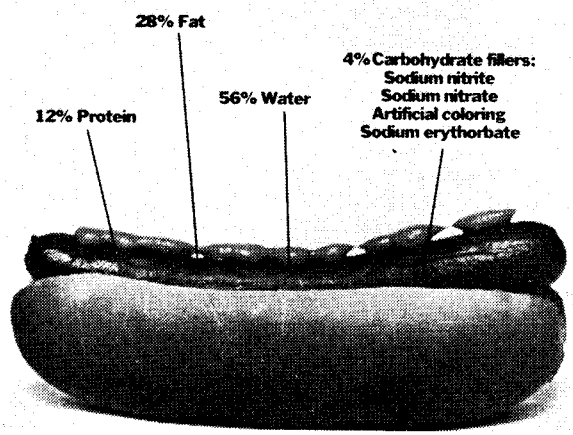

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Theater

Collage Humor

BY HENRY HEWES

LAKEWOOD, Ohio—The Great Lakes Shakespeare Festival, which has been operating in this Cleveland suburb for eleven years, has become increasingly inventive. This summer, for instance, producer-director Lawrence Carra invited American-born British director Charles Marowitz to come and stage his collage version of *Hamlet*.

Although the working conditions here are difficult, with the actors performing one play eight times a week while they rehearse the next for only ten days, the Great Lakes company has already done quite well this year, with such items as a very successful staging of *The Beggar's Opera* that stresses comedy; and a *Richard III* featuring David Little, as a healthier-than-usual Richard, and Susan Willis, as a Duchess of York who stands out as prophetic chorus to the action.

The company also has risen to the strenuous demands Marowitz's *Hamlet* makes on its performers. His one-hour-and-fifteen-minute version of the play attempts to present the words and events of the play as they might come to Hamlet in a nightmare. Thus we begin with Hamlet in blue jeans and a white clown face on which is painted a single tear as he feels shamed by Fortinbras's gutsy expedition to Poland. His father's ghost appears in dinner jacket with both eyes blackened to chide his tardy son, and also to luxuriate as he speaks Hamlet's lines about the father's superiority over Claudius. When Hamlet reviles Claudius as a "damned villain," Claudius amusingly answers, "Why 'tis a loving and fair reply." A sex-starved Ophelia dressed like a kewpie doll seduces Hamlet with songs from the mad scene and eventually is raped by him. She screams as she is assaulted but afterward sits up and smiles in pleasure.

One actor in a checked suit plays Polonius, the Gravedigger, and Osric. Two others, in split face makeup and tied to each other with rope, are Rosencrantz and Guildenstern. A chic Gertrude rocks Hamlet in her lap as if he were a baby, and later, when he makes love to his mother, Claudius appears and advises her, "Good Gertrude, set some watch over your son!"

As Hamlet makes his passionate speech at Ophelia's funeral, Polonius mumbles advice about not sawing the air too much with his hand. Then, in a trial scene, Hamlet's defense counsel must stop the prince from confessing his unworthiness. At the end of the play the entire court lies dead, but mocking Hamlet with laughter as he strikes again and again with his toy sword, saying, "From this time forth my thoughts be bloody or be nothing worth." The cast, led by Gregory Lehane and Maureen Moore as Hamlet and Ophelia, perform with relish and full commitment. And it is that commitment and Marowitz's imagination that hold the audience through exercises without narrative progression.

CINCINNATI, Ohio—During the regimes of Brooks Jones and Word Baker, Cincinnati Playhouse in the Park has consistently pursued an adventurous policy. Actors and even entire companies have been imported to make the roles more ideally cast and the schedule more varied. And although popular revivals have predominated, first Jones and then Baker have sought out a generous number of new works and given them world or American premières.

This season Baker has wisely painted the light gray walls of the auditorium black to achieve more focus on the stage. In June he unveiled a new musical called *Shelter* by some of the collaborators who created *The Last Sweet Days of Isaac*, and now he has audaciously tackled a new play about a self-destructive, amoral girl living promiscuously in the big city. Written by Milburn Smith, a freelance magazine writer and editor who has been moonlighting as a playwright since 1969, the work bears the strange title, *Sensations of the Bitten Partner*. It seems that his protagonist, Ann, once read a sex manual in which there was a chapter on "The Love Bite," followed by another chapter, "Sensations of the Bitten Partner," which Ann says she thought was pretty funny. Funny or not Ann is about to become the victim of her own sensation-seeking sexual excursions in which she rates her partners' performances on a scale from one to ten.

Smith obviously disapproves of Ann. For one thing, she has deliberately taken a young black girl, Janet, as a roommate, both to shock her family and in order to feel socially superior. Janet has been brought up in a white household where her mother and father were servants, and quietly dislikes herself for not standing up for her blackness in interracial situations. Furthermore, Ann excuses her irresponsible life, which, of course, is funded by her parents, whom she despises because the father, who had badly wanted a son, took out his disappointment on her when she was a child.

During the course of the play there are two visitors. Ann's mother arrives and seems less shocked at the discovery that Ann's roommate is black than she is at the squalor in which her daughter is living. The mother says, "Look, goddamnit, I don't subscribe to the idea that Youth is some goddamn secret society. Tell me what you're going through and I'll understand." However, the mother gets nowhere and tells Ann she doesn't like her because she finds Ann's rebellion dishonest.

The other visitor is Michael, an amoral young man whom Ann describes as "rough trade." Michael is turned on by sex and violence and screws both the willing Ann and the reluctant Janet. In the end there is only one thrill left to enjoy. It is killing. Smith has written a bloody final scene, which seems too abrupt and arbitrary, even though we accept its moral rightness and emotional necessity.

Under Baker's direction the characters emerge as more attractive than you would expect. Swoosie Kurtz portrays Ann as healthy and happy in her promiscuity. T. Richard Mason's Michael is a mixture of common-sense coolness and danger. Karin Patterson brings an appealing inner wisdom to Janet. And Anne Shropshire's portrait of the mother is surprisingly sympathetic.

Apparently the playwright wanted this likability to balance the impact the play's sordid events might have on middle- and older-generation audiences. For even as it stands, as many as forty-two people have gotten up and left in the middle of a performance. Yet one feels that if *Sensations of the Bitten Partner* is to express more strongly its author's indictment of Ann and Michael, and if the violent ending is to seem natural and inevitable, Smith may have to risk losing half a theaterful of people. □

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Films

Sports Parade

BY ARTHUR KNIGHT

There is a theory in the Hollywood studios that sports films don't make money, just as there used to be a theory—prior to *Gone With the Wind*—that nobody went to Civil War pictures. Of course, the one notion makes no more sense than the other, but producers are a notoriously stubborn lot; and if you point out to them that *some* sports movies *have* made money, the retort is apt to be, "Oh, but that really wasn't a sports movie—that was a movie about *people*." Well, in my book, John Huston's *Fat City*, based on the novel by Leonard Gardner, is both a sports movie and a people movie. And I hope it makes lots of money for all the daring and talented people who created it.

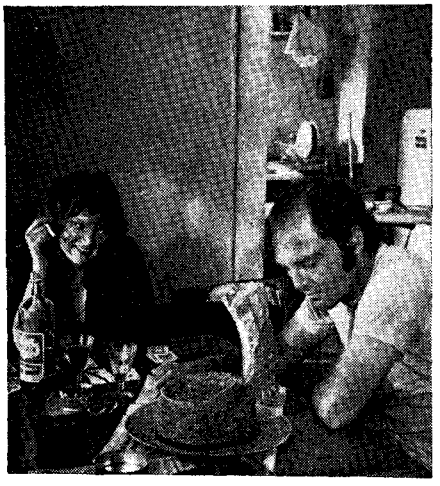
For one thing, *Fat City* is the first fight film I can think of that isn't crawling with hoods and racketeers, all waiting to gang up on our hero if he doesn't throw the big bout. In other words, it is refreshingly free from cliché, including the chestnut that has the hero's ego swelling beyond endurance as he goes on toward the championship. Gardner's hero, an amiable, easy going, not too bright chap named Billy Tully, never gets anywhere near the championship. Although he keeps dreaming of "fat city"—that mythic place where dreams come true—his less euphoric reality is a composite of seedy rooming houses, grubby bars, and the meaner streets of Stockton, California. Tully, pushing thirty, had been doing well enough in the fights until his wife left him after he had lost an important match in Central America. Now he loafs and smokes and drinks. But there is still that dream of making it.

That hope begins to take shape again one day when, after a bit of sparring with a young fighter named Ernie Munger, Tully decides to go back into training. Although he still blames his former manager Reuben Luna for his defeat, where else can he turn? Ernie, nursing his own dreams of fat city, also joins Luna's stable. Both Tully and Ernie acquire girls—the wrong girls. Tully's is a promiscuous wino, happy to share her wretched flat with him as long as her man (a black, incidentally) is in jail and Tully keeps the bottles coming.

What sets this film apart from the ordinary run of pictures is that John Huston (with a strong assist from Gardner's script) has elected to show these people as people. They are not blamed for their conduct. Indeed, underlying *Fat City* is a profound commiseration for the human condition; an awareness that, while people are no better than they should be, they often act much better than they might. One can understand, for example, why Reuben, after collecting the purse for Tully's first victory, passes only $100 to his fighter. Partly, it's because Reuben has been supporting Tully until he could win his first purse; partly, it's because he is afraid that Tully will blow the money on booze. But one can also understand Tully's indignation when, standing out in the traffic, he showers curses on the man who, to save some money, had let him down once before.

What makes the film even more extraordinary is the fact that, at every point, the performances match the richness and maturity of Huston's intentions. Stacy Keach, in the pivotal role of Billy Tully, is probably the most effective young actor on the screen today. A few weeks ago, as the dedicated, dynamic rookie cop in *The New Centurions*, he was able to make one feel that, at last, he was seeing the real Stacy Keach. In *Fat City*, as a wall-eyed, stringy-haired, almost washed-up pug, he makes one feel the same thing. The fact seems to be that Keach is able to burrow so far into a role that he can become whatever the role calls for. Whether trading jokes with a field hand or punches with a sparring partner, he *is* Billy Tully. Also startlingly effective is Susan Tyrrell as the embittered, outspoken Oma, the girl Tully picks up in a bar. It is more than her slurred speech and the hard lines that Gardner has put in her mouth. There are bits of business peculiarly her own that keep her constantly, consistently in character. Jeff Bridges is splendid as the up-and-coming Ernie; but no less impressive are Nick Colasanto, a TV director, as the adenoidal Reuben, or former fighter Art Aragon as Reuben's assistant, or former welterweight champion Curtis Cokes as Oma's jailed lover.

Tyrrell and Keach in "Fat City"



All of which means that John Huston, at long last, has returned to us in top form, able to elicit superb performances from all his players, able (with a strong assist from cameraman Conrad Hall) to sustain an incredibly accurate sense of milieu, and above all able to formulate a metaphor in which human hopes, the desire for happiness and self-fulfillment, are seen in a terrifying, thought-provoking perspective.

Oddly enough, the new Raquel Welch movie, *Kansas City Bomber*, travels much the same route to make much the same statement, although never quite so trenchantly or incisively as *Fat City*. This time the ring becomes an oval—the plyboard track of the wildly competitive roller derbies. Raquel, a divorcée from Fresno (not too far from Stockton), enlists in the sport to support her two children and to avoid marrying a Fresno shopkeeper. Once in the game, she also has to avoid the clutches of toothy Kevin McCarthy, who manages her team. Unlike *Fat City*, the message of *Kansas City Bomber* is carefully spelled out. "We're all used—" McCarthy tells an affronted Miss Welch, "anybody on two legs." But despite this and other script deficiencies (like a fight on a railway track with a train approaching), the derby action keeps the film alive, the milieu is fresh and exciting, and Raquel Welch, for once, has an opportunity to demonstrate that within that fantastic body lives a woman of considerable sensibility, sensitivity, and talent. This could mark the coming alive of her career. It certainly marks an advancement for Helena Kallianiotes, the garrulous, ecology-minded hitchhiker in *Five Easy Pieces*. As an embittered rival skater, she all but steals the film away from Miss Welch. □

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Music

Carry Me Back to Treemonisha

BY IRVING KOLODIN

Taken together, what is "high tone" and what is "low down" in Scott Joplin's *Treemonisha* make of it a curious cultural artifact on the long upward path of America's music from imitation to individuality. Its recent revival at the Filene Center on the Virginia side of the Potomac stirred an audience periodically to rousing applause for the most rhythmic of the "low down." The "high tone" did not fare nearly as well.

Everybody knows that Joplin achieved international fame in the decade before World War I as the composer of "Maple Leaf" and other rags. He was a brilliant exponent of them at the keyboard, as random recordings and piano rolls still attest. But it was his obsession to create an opera to crown his career, and *Treemonisha* was it. He even paid to have *Treemonisha* performed, fragmentarily, but it was condemned to silence until a general revival of interest in Jopliniana brought a pioneering venture in Atlanta earlier this year. The best of it was woven into the production at Wolf Trap (the geographical locale of the Filene Center).

Why *Treemonisha*? Well, the title is a clue to the work's naïveté. It concerns a pair of recently liberated slaves named Ned and Monisha whose longing for a child has gone unrewarded. They discover, all too inexplicably, a female infant on their doorstep. They not only claim it for their own, but name it Tree-monisha, for the mother and the tree under which the child loves to play.

All this precedes the curtain rise, which finds Treemonisha about to celebrate her eighteenth birthday (and when the part is played by Alpha Floyd, Treemonisha has done a heap of growing in eighteen years). Mother Monisha has seen to it that her daughter has acquired some education in the benighted backwoods where they live (Texarkana, or the equivalent), even if it has meant bartering housework for instruction in the three Rs. Thus she has grown to be the envy of other young blacks.

She has also grown to be a threat to the older ones who practice conjuring, purvey superstition, and profit by the ignorance of their "subjects." They contrive to kidnap her, with a view to having her stung to death by being tied to a wasps' nest. But Treemonisha's faithful friend Remus puts the conjurors to flight by impersonating the Devil. Treemonisha is welcomed back home with communal rejoicing and a plea that she serve them as their "leader" on the way to education.

This glorification of education and its power puts an almost autobiographical gloss on the work. Joplin originated in much the same part of the Union. He may well have realized that his enemy was not lack of talent but inadequate skill to make the most of it. When he is working with such congenial problems as the "ring dance" of the cornhuskers or the frolic of eight bears who suddenly appear among the conjurers, the results are all dynamism and charm. And the rousing "Aunt Dinah Has Blowed de Horn," which ends Act II, and the "Real Slow Drag" climaxing Act III (and the work) enable director Katherine Dunham to devise dance ensembles that atone for almost all the shortcomings that have preceded.

Among those that they do not atone for are the ballad strains and snatches (G and S, indeed, as well as the equivalents of "Sweet Genevieve" and "Bird in a Gilded Cage") to which Joplin has recourse when he is striving for sentiment. These are the elements of "high tone" that all too often undo the best of his native impulse. Astonishingly, the impulse triumphs over the lack of resource when the community's beseeching "We want you as our leader" becomes a swelling choral ensemble. This takes the shape of an almost Handelian tune that, church-derived though it may be, suggests the heights Joplin might have attained with another kind of conditioning. The depths are defined by his death, on April 1, 1917, in Manhattan State Hospital (on Ward's Island). The death certificate attributed the cause to "Dementia Paralytica-cerebral" and stated the contributing cause to be "Syphilis."

In addition to more scenery (by Richard Gullicksen) and more people, the Wolf Trap production differed from its Atlanta predecessor in the sound and scope of the orchestra utilized. It was the agreed opinion of the Joplinwise, beginning with his distinguished devotee Vera Brodsky Lawrence, that the first score, by T. J. Anderson, was less than idiomatic. Working in terms of the theater orchestra Joplin might have been acquainted with, William Bolcom, of Queens College, has achieved an altogether satisfactory solution to the problem. An attractive blend of informality, formality, and robust disregard for categorization set the stage abobbing with bodies fulfilling the Dunham directives.

It was absorbing, also, to observe such gifted and well-schooled singers as Alpha Floyd, whose beautiful soprano sound ennobled the music of Treemonisha; Louise Parker, a rich-voiced mezzo, as her mother; and the admired Simon Estes as her father, taking off on stage-type "blacks" with all sincerity and shrewd touches of caricature. In the cases of Seth McCoy as Remus and Clarke Salonis as Parson Alltalk, the caricature recalls Hamlet's "the air bites shrewdly."

A healthy attitude of impersonation without recrimination also prevailed in the work of the black dance group from the Performing Training Center of Southern Illinois University. If the current *Information Please Almanac* is accurate, this institution, located in Edwardsville, Illinois, has a student body of 12,521. Every one of them could be proud of their talented representatives' part in *Treemonisha*.

For that matter, for all its clear and present shortcomings, *Treemonisha* has enough longcomings to justify pride for all who took part in its presentation and to merit its perpetuation elsewhere. It has the crudities and inadequacies to be associated with artifacts generally, but under the direction of Paul Hill, the message of *Treemonisha* came unmistakably clear. Education without talent may be limiting, but talent without education is self-defeating. James Bland, first of freed slaves to write American music, was thinking in one context when he wrote "Carry Me Back to Old Virginny" (he was born in Flushing, Long Island); Scott Joplin in another, when he had Treemonisha's followers declare "Lead us, lead us, and we will surely rise." Sixty years later the prophecy is closer to fulfillment than Joplin might have dared to hope. □

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Air / Sea

BY JAY CLARKE

MIAMI, Fla.—The pretty blonde smiled. What did she like most about her just-concluded Caribbean cruise? "The crew," she said coyly. "They're so handsome."

Her mother, however, was more impressed by the low price of the air-sea package deal that had brought them from California to Miami to embark on a two-week cruise and that would now jet them home again. "It's just as if our air fare from California to Miami and back cost just seven dollars," she said.

The lady's arithmetic may be a little off, but the price is still impressive. The regular rate for a fourteen-day cruise on this ship, Royal Caribbean Lines's *Nordic Prince*, is $640. For the Californians, the cost was $672 for equal accommodations. The $32 difference included round-trip air transportation from Los Angeles to Miami, complimentary drink and meal in flight, transfers to and from the Miami airport, a sightseeing tour of Miami, lunch on Key Biscayne, the use of a hotel room for a few hours before boarding ship, and the cruise itself.

What is even more astounding is that when new rates go into effect on January 1, it will actually cost $10 *less* for a Los Angeles resident to go on this cruise than for someone living in Miami.

How can this be possible? First, the cruise line is acting as its own tour operator on the California tours, thus saving on commissions; second, it uses group-cruise fare schedules rather than the regular rate quoted for the Miamian; and third, it charters an aircraft—and fills it up—to fly its passengers from coast to coast.

Not all air-sea tours produce such dramatic savings as this one. In many cases convenience and comfort outweigh price considerations. But whatever the reason, the air-sea travel idea is rapidly gaining in popularity. Nowhere is this more evident than in South Florida, whose two great cruise ports, Miami and Port Everglades, have shown such spectacular growth in recent years. "When you take a cruise out of New York City in wintertime," explained Bob Garrity of Norwegian-Caribbean Lines, which operates four ships out of Miami, "your first day-and-a-half or two are in cold weather. That's probably the real story behind the growth of Miami as a cruise port." By flying to South Florida, cruise passengers gain four days of sailing in warm seas.

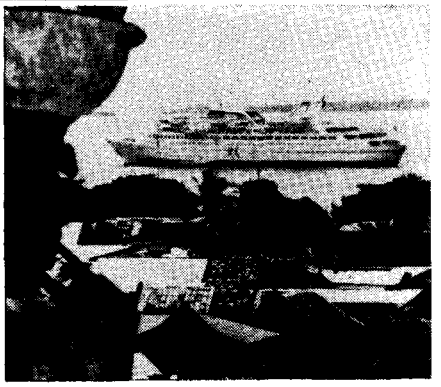
It's hardly surprising, then, that a bewildering array of air-sea tours are available to tourists these days. Some are no more than a flight and a voyage strung together, with no particular price break. Others have been arranged by a tour operator, who, with group fares, can effect substantial savings.

Once you've decided to go on an air-sea tour, the problem is to pick one. Do you want to go only on a cruise departing from a distant city, or do you want some time on land as well? Some tours provide for round-trip air transportation, others for one way by air, one by sea. Others combine a stay on land with a cruise and flight.

Typical of the latter is a seven-day package that leaves from New York or Boston and arrives in Miami, where passengers embark on a three-day cruise to Nassau. They also get four nights at a Miami Beach hotel (or a four-day cruise and three nights at a hotel), all transfers included. This one goes for $165, plus air fare. A week's cruise to Cap-Haïtien, San Juan, St. Thomas, and Nassau, plus two nights in a Miami Beach hotel, starts at $225, plus air fare. These are minimum prices providing for minimum shipboard accommodations, which are limited and not always available.

Another tour effective this winter is a package that will fly tourists to Tampa, take them on a weekend tour of Tampa, Walt Disney World, Cypress Gardens, and the Cape Kennedy Space Center, bus them to Miami for a four-day cruise to the Bahamas, and fly them home from Miami. Total cost starts at $299.50 from Chicago or $284.50 from New York.

Coast-to-coast cruises have always had a special appeal, and now, with air tie-ins, they are becoming increasingly popular. In the coming season four lines will operate cruises between Port Everglades and the U.S. West Coast. A typical itinerary will find the ship making calls at a few Caribbean ports, then sailing on to Panama, Acapulco, and ending up at Los Angeles and San Francisco.



Charlotte Amalie, St. Thomas

While most of Florida's cruise passengers come from other parts of the United States, the air-sea packages are also drawing visitors from abroad. One air-sea tour brings Europeans (mostly Frenchmen) via London to Port Everglades for a Caribbean cruise on the liner *Mermoz*. Another jets European tourists from London to the island of St. Lucia to embark on the *De Grasse*.

In general, the idea in air-sea tours is to decide where you want to go, then to pick the most attractive and convenient package for your taste and pocketbook. If there are any hazards to be prepared for, the most annoying may be in baggage handling. Not many slip-ups occur, but the ones that do are memorable. One girl's luggage failed to make it from the airplane to the ship, and she wound up wearing an odd assortment of clothing borrowed from the all-male crew.

Less inconvenient—but perhaps more frustrating—was an incident recalled by Helen Finlay, now of Carnival Cruise Lines but then with another line. Five planeloads of air-sea travelers were to make a cruise, and the line had carefully color-coded their luggage with differently colored tags. Despite all these pains, the luggage wound up in utter disarray. After several hours of exasperation puzzled officials finally unraveled the mystery: One of the luggage handlers was color blind.

But probably no one has been as confused as the air travelers at Kennedy Airport in New York who overheard a mother tell her son and daughter-in-law at the loading gate, "Hurry up or you'll miss the ship." □

Jay Clarke is Sunday editor of the Miami Herald.

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Dance

Mr. "B's" Ballet Envoy

BY WALTER TERRY

"Pat," says George Balanchine, "is my European representative—she is perfect for staging my ballets." The "Pat," of course, is Patricia Neary, the tall, long-limbed, red-haired, high-flying dancer who delighted New York City Ballet audiences until recently when she suddenly found herself in Europe as an itinerant restager, a *répétiteur* (a fancy ballet name for one who directs rehearsals), and an oft-requested guest ballerina. Itinerant duties are not to be scorned. In the early days of our republic, dancing masters brought to American cities the latest dance vogues from Europe. Today the process is often reversed and Americans bring American dance—especially Balanchine ballets—to Europe.

Pat is not the first dancer to stage Balanchine ballets for foreign troupes—indeed she is, at twenty-nine, the newest and the youngest—after Mr. "B" had generously offered his ballets to the world. Balanchine himself has restaged many and still provides a last-minute polish to what his representatives have done. John Taras, his co-ballet master at NYCB, is a Balanchine expert and has often restaged the master's ballets. Francia Russell and Victoria Simon are among others who have recreated Balanchine ballets with the consent and recommendation of the boss. But Pat Neary is special.

Pat Neary's European assignments have taken her (or will take her) to Geneva, Berlin, Amsterdam, Dusseldorf, Hamburg, Stuttgart, Rome, Vienna, Athens, Riga, Moscow, and Leningrad. Productions she has directed include *Four Temperaments* (Hindemith), *Apollo* (Stravinsky), *Episodes* (Webern), *Symphony in C* (Bizet), and the enormously complex *Agon* (Stravinsky, 1957).

Pat has by no means passed on her toe shoes to her younger sister Colleen, a highly gifted junior member of the City Ballet. Abroad, not only does Pat perform as guest in the Balanchine works that she stages but she has been invited to join more than one company on a permanent basis. But no matter how tempting the offers, she politely declines. "I'm a gypsy," she says. "I get restless in one place. I like to keep on the move." But she stopped long enough in Hanover to have Richard Adama, an American choreographer long associated with European ballet, to create a work, *Medusa*, especially for her. "It's a great part. Men turn to stone when they see my hair is made of snakes!" In real life men tend to become soft as butter in the presence of the very alluring redhead.

As for her skill in directing Balanchine ballets for troupes abroad, Miss Neary explains it thusly: "I'm not a frustrated choreographer, so I never tamper with Mr. B's ballets; I instruct in matters of his style—and it's a very unique one—as well as in his steps and gestures. In my career with the New York City Ballet I danced in the *corps* as well as doing principal roles, so I also know all the parts by first-hand experience. Fortunately, I have a quick memory—actually, I learned *Agon* in one day and went on stage that night."

She does not rely on her memory to the exclusion of other aids. "I remember movements easily, but you know how Mr. B. can move one group on one beat and another group on a later beat and so on, although they may all be doing the same step—it can be like canon form. So I take notes mainly on the musical counts in a ballet and with these, my memory, and most of all my own performing experiences under him, I can do the job. I don't want to stop with the Balanchine ballets I've already done, or that I will be doing—I'm scheduled to do Mr. B's *Serenade* for the Bolshoi Ballet—because I want to keep up with him . . . if I can! I know that his new *Violin Concerto* for the Stravinsky Festival is already considered a masterpiece. He hasn't *asked* me to learn it, but I *am* learning it just in case he asks me if I know it."

Pat Neary, after a fleeting visit home, is back in Europe for a full year of travel and work. She will be performing as well as staging, and she will keep herself in top dance trim with daily classes. "When I can't get to an open class," she says, "I teach myself. I give myself impossible things to do, but I make myself do them. It pays off when I get on stage."

But for Patricia Neary, itinerant ballerina, pride is rooted firstly in the fact that she has been appointed "my European representative" by one of the choreographic greats of all time. □

The itinerant Patricia Neary

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Phoenix Nest

Fire Alarm!

EDITED BY MARTIN LEVIN

It's a lot easier to put together a first column than a last. There are more choices and no options. Stretching backward over the past fourteen years is a wealth of casual humor that has given joy to its authors, its readers, and to me. Unpublished, as yet, are a legion of essayists reacting to some current phenomenon, from pop religion to the trend to generic names in consumer goods. What to do? Following my heart, I have elected to reprint a piece by George S. Kaufman, who helped me open the Nest. It seems fitting that he help to close it. George S. Kaufman, you may recall, said that "satire is what closes on Saturday night." It is also what closes in this issue of *Saturday Review.*

M. L.

Mother Goose and the Golden Egg
(*A play for Very Little Children*)

(*A cute little girl of about eight, named Sally, comes out onto the stage and starts to recite.*)
SALLY:
Sing a song of sixpence,
A pocketful of rye,
Four and twenty blackbirds
Baked in a pie.
When the pie was opened,
The birds began to sing;
Wasn't that a dainty dish
To set before a—
(*But a man in his shirt sleeves, weighing about two hundred pounds, makes an entrance at this point and interrupts.*)

THE MAN: What's the idea this?

STAGE MANAGER: Idea what?

THE MAN: Don't give me that—I'm from the Musicians' Union. You know the rules well as I do. Them four and twenty blackbirds! You going to have four and twenty blackbirds come out and sing you got to hire four and twenty standby blackbirds from the union. *You* know that!

STAGE MANAGER: But I just don't see—

THE MAN: Another thing! This King Cole or somebody you had yelling for three fiddlers. From now on he yells for six fiddlers, two horns, drums, and an oboe.

STAGE MANAGER: But it seems to me—
(*Another man has entered. Two hundred and fifty pounds.*)

SECOND MAN: Talk to you a minute?

STAGE MANAGER: Sure.

SECOND MAN: Pastry Makers' Union. Where you going to get this pie?

STAGE MANAGER: But it isn't a real pie. She just—

SECOND MAN: Talk about a pie gotta have a real pie offstage. How big this pie?

STAGE MANAGER: It's not big. It just—

SECOND MAN: Holds a lot of birds, some kind.

STAGE MANAGER: Blackbirds. Little bits of things. They—

SECOND MAN: How many of 'em you got?

STAGE MANAGER: Uh—four and twenty. But they're very—

SECOND MAN: Four and twenty of 'em. Need a pie six-foot-three diameter.
(*But a third man has entered. Two hundred and seventy-five pounds.*)

THIRD MAN: Pie Carriers' Union! How many men going to carry that pie?

STAGE MANAGER: Nobody carries it. It's just offstage.

THIRD MAN: Somebody got to *put* it offstage, don't they?

STAGE MANAGER: Uh—yes—but we—

THIRD MAN: My advice put on four men before the matinee tomorrow.
(*But a fourth man has entered. Three hundred pounds.*)

FOURTH MAN: Society Prevention Cruelty Blackbirds! How long them birds going to be in that pie?
(*But the curtain is down.*)

George S. Kaufman

THE PHOENIX

Deep in the study
Of eugenics
We find that fabled fowl, the phoenix.
The wisest bird
As ever was,
Rejecting other
Mas and pas, it lays one egg, not ten or twelve,
And when it's hatched, out pops itselve.*

Ogden Nash

* And it will pop before long in newspaper syndication; announcements of the blessed event on request to Box 83, Planetarium Station, New York, N. Y. 10024.

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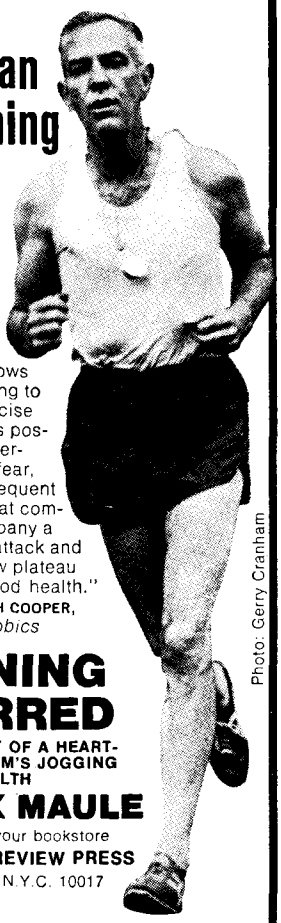

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(Continued on Page 68)

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(Continued from page 67)

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No. 2004

By Janet Elliott Cameron

DEFINITIONS	WORDS
A. Member of the foursome of "Bob & Carol & Ted & Alice" (2 wds.)	94 121 141 1 39 47 5 136 69 192 173 157
B. *Imprudent*	113 107 161 27 174 132 38 46
C. Returns	33 133 51 120 191 28
D. Fabricate	195 80 158 155
E. *Conform (3 wds.)*	52 112 105 2 167 138 41 71 102 156
F. Cenobite nun who is free to come and go whilst handling the affairs of the convent (2 wds.)	182 40 93 29 3 70 125 114 48
G. Immediately	76 164 44 72 180 143 124 110 106
H. Paramount	140 77 108 49 30 190 144 162
I. "A nice derangement of _____" (Sheridan)	109 67 172 90 35 78 111 42
J. Benedictine nun, noted as a poet, dramatist and historian (var. sp.)	123 154 74 171 163 50 6 91
K. Perceive	43 68 79 169 7 149 134 36 54
L. Unfermented infusion of malt which becomes beer or mash	127 147 135 188
M. Goings on	98 34 148 137 75 184
N. Give the o.k. (2 wds.)	166 128 31 177 55 8 187 119
O. Incarcerated presidential candidate (2 wds.)	53 178 103 45 165 73 37 131 186 32
P. Sepulcher	99 176 60 64 17 82 9 66 130 56
Q. *Difficult to please*	65 115 100 152 13 122 63
R. Inhuman	10 61 21 58 150 170 81 92
S. Professed	18 104 57 11 117 139 194 85 62 129
T. "Nature must obey _____" (Shakespeare)	153 59 179 86 4 193 101 12 151
U. An Aetolian king, fathered by Ares	83 22 15 95 88 183 19 116
V. Dutchman	25 126 87 14 97 168 159
W. Turbulent novel by George Eliot (2 wds.)	26 16 23 145 175 84 181 160
X. Geriatrics	189 118 89 24 142 20 146 185 96

	1 A	2 E		3 F	4 T		5 A	6 J	7 K		8 N	9 P	10 R	11 S	12 T	13 Q
14 V	15 U	16 W		17 P	18 S	19 U	20 X		21 R	22 U	23 W	24 X		25 V	26 W	27 B
28 C	29 F		30 H	31 N	32 O	33 C	34 M		35 I	36 K	37 O		38 B	39 A	40 F	41 E
42 I		43 K	44 G	45 O		46 B	47 A	48 F	49 H	50 J	51 C	52 E	53 O	54 K		55 N
56 P		57 S	58 R	59 T		60 P	61 R	62 S	63 Q		64 P	65 Q		66 P	67 I	68 K
69 A	70 F	71 E	72 G	73 O	74 J		75 M	76 G		77 H	78 I	79 K	80 D	81 R	82 P	83 U
84 W		85 S	86 T	87 V	88 U	89 X		90 I	91 J	92 R	93 F	94 A	95 U		96 X	97 V
98 M	99 P	100 Q	101 T	102 E	103 O	104 S		105 E	106 G	107 B	108 H	109 I		110 G	111 I	112 E
113 B	114 F		115 Q	116 U		117 S	118 X		119 N	120 C	121 A	122 Q	123 J	124 G	125 F	126 V
	127 L	128 N	129 S	130 P	131 O		132 B	133 C	134 K	135 L	136 A	137 M	138 E	139 S		140 H
141 A	142 X	143 G		144 H	145 W	146 X	147 L	148 M	149 K	150 R	151 T		152 Q	153 T		154 J
155 D	156 E		157 A	158 D	159 V	160 W	161 B	162 H	163 J	164 G	165 O		166 N	167 E	168 V	169 K
170 R		171 J	172 I	173 A	174 B		175 W	176 P		177 N	178 O	179 T	180 G		181 W	182 F
183 U	184 M	185 X		186 O	187 N	188 L		189 X	190 H		191 C	192 A	193 T	194 S	195 D	

DIRECTIONS

Don't let the definitions scare you. If you can guess five or six of these WORDS correctly, you should be able to solve the Double-Crostic . . . When you've guessed a WORD, fill in the dashes, and also write each letter in its correspondingly numbered square in the diagram. When all the squares are filled in, you will have a quotation from a published work. Dark squares indicate the ends of words. If there is no dark square at the right side of the diagram, the word carries over to the next line . . . You should be able to see words and phrases begin to form in the diagram on the basis of having just a few letters. Enter the letters you can guess into the diagram and the blanks in the defined WORDS, and you'll find yourself working from WORDS to diagram and back, solving the puzzle . . . The initial letters of the defined WORDS spell the name of the author and the title of the work from which the quotation was taken. This acrostic feature can be very helpful to the solver.

Solution of last week's Double-Crostic will be found on page 57 of this issue.

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"I say let's keep the campaign honest. Mobilize 'truth squads'..."

Stewart S. Cort, *Chairman*
Bethlehem Steel Corporation

"Why do I see this need? Because several months ago we lived through a number of political primary campaigns. And it ought to be clear to all of us that there have been times when truthfulness took an awful beating. And now we have a presidential campaign ahead, during which we can clearly see a lot more of the same.

"I'm thinking of the careless rhetoric and accusations that are being thrown around these days—their main target being the business community.

"Right now, look at every candidate's declared political programs. Analyze every issue. If you think any of them are faulty, ill-founded, or misleading, prepare your own answers and use those answers to set the record straight. I'd suggest that groups with a deep interest in good government organize programs to encourage responsible, honest, and truthful campaigning. Mobilize "truth squads," perhaps.

"One thing you can do is talk in advance with the communications media in your area—newspaper publishers, editors, reporters, radio and television people, and magazine publishers. Alert them to the kinds of false statements that are likely to be made and show them how and why those statements are false or deceptive. Give them the facts. They're likely to take a highly responsible position in reporting what the politicians say if they're forewarned.

"And when outrageous accusations are reported in the media, you ought to refute them immediately. You can do it if you're properly prepared. Plan to attend political functions and stand up when spokesmen are off base. Concerned citizens ought to do this; it's nothing more than true democracy in action."

From a talk "SPEAK OUT FOR TRUTH" to the Rotary Club, Jacksonville, Florida.

As an example of the careless rhetoric and accusations about the business community, Mr. Cort quoted the following statement made by a political candidate: "The time has come for a tax system that says to big business—you must pay your fair share."

His answer: "That's a reasonable demand, but it implies that we aren't already paying our 'fair share.' My own company has been tagged with that sort of accusation despite the fact that over the past 10 years our taxes have averaged $37 million a year more than our net income. Our total tax expense was nearly $200 million last year, $155 million in 1970, and more than $1.7 billion for the 10 years from 1962 through 1971.

"So please think twice before swallowing all this baloney about large corporations not carrying their fair share of the tax burden."

If you would like a copy of Mr. Cort's entire speech "SPEAK OUT FOR TRUTH," and if you would like a folder telling how to go about activating *Truth Squads*, write: Public Affairs Dept., Bethlehem Steel Corporation, Bethlehem, PA 18016.

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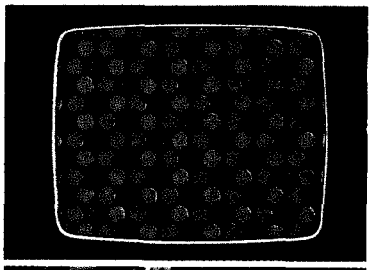
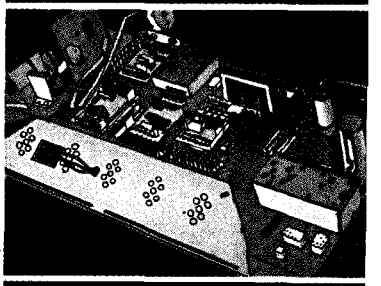
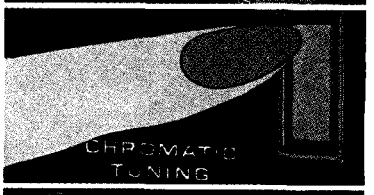
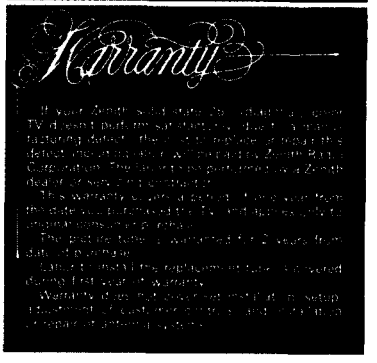
ZENITH INTRODUCES THE COMPLETE COLOR TV

It has everything you want, including a picture even brighter and sharper than famous Zenith Chromacolor.









New Super Chromacolor Picture Tube
Zenith has discovered a way to enlarge the color dot area, and still fully illuminate every dot on a black background. To bring you a giant-screen color picture that is even brighter and sharper than the famous Chromacolor picture that set a new standard of excellence in color TV.

100% Solid-State Chassis
Zenith's new solid-state chassis features plug-in Dura-Modules. They control key set functions, such as color, picture quality, and stability. And each Dura-Module is pre-tested, then tested again in the set, for long life and dependability. There are no tubes to burn out.

One-button Color Tuning
Zenith's new Chromatic Tuning controls picture brightness, contrast, tint, color level and flesh tones. If someone mistunes the color, the touch of a finger retunes it perfectly, instantly.

A Full Year Warranty
Zenith's new warranty covers the cost of all parts and service for one year. And the new Super Chromacolor picture tube is warranted for 2 years, labor covered for the first year.

Zenith Quality and Dependability
Most important of all, you get the kind of built-in quality and dependability that have made Zenith world famous. We call this reputation for excellence *Zenith confidence*: knowing you can't buy a better TV.

We are determined to keep this confidence. If a Zenith product doesn't live up to your expectations, we want to hear from you.

Write directly to the Vice President, Customer Relations, at Zenith Radio Corporation, 1900 N. Austin Avenue, Chicago, Illinois 60639. We want the opportunity to give your problem our personal attention. At Zenith, *the quality goes in before the name goes on.*®

ZENITH® SUPERCHROMACOLOR®

See "Zenith Presents: A Salute to Television's 25th Anniversary," Sept. 10th, ABC-TV, 9:30-11:00 p.m., EDT.

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